FIELD CROP ABSTRACTS

Vol. 11, Nos. 1, 2, 3, and 4
and Annual Indexes
1958

Prepared by
COMMONWEALTH BUREAU OF PASTURES AND FIELD CROPS,
HURLEY, BERKSHIRE

Published quarterly by
Commonwealth Agricultural Bureaux, Farnham Royal, England

© *Commonwealth Agricultural Bureaux, 1958*

COMMONWEALTH BUREAU OF PASTURES AND FIELD CROPS

Director
A. G. G. Hill, B.A., Agr.B. (Dublin), B.Sc. (N.U.I.)

Assistant Director
C. L. Skidmore, B.Sc. (Agric.) (Lond.), Dip. Agric. (Wye), A.I.C.T.A.

Scientific Assistants
Miss M. Hall, M.Sc. (Manchester)
Miss D. Brown, M.Sc. (Liverpool)
Mrs. E. Biasutti Owen (Dr., Milan)
P. J. Boyle, M.A. (Agric.) (Cantab.)
Mrs. A. M. Hall, Ph.D. (Cantab.)
R. Boyce, B.Sc. (Dunelm.)

Consultant Director
William Davies, D.Sc., Director, Grassland Research Institute, Hurley, Berkshire.

FIELD CROP ABSTRACTS

The subscription rate (post free) for *Field Crop Abstracts* Volume 11, 1958 (4 issues), is 50s. sterling (in USA and Canada $7.00), with 20% discount for subscribers (non-trade) in the British Commonwealth and the Republics of Sudan and Ireland who send their orders direct to the Commonwealth Agricultural Bureaux, Central Sales Branch, Farnham Royal, Bucks, England. No discount is allowed on earlier volumes.

Payment can be made by personal cheque at current rates of exchange, by International Money Order, by Bank Draft in sterling, or, in certain countries, by UNESCO Book Coupons. In countries other than USA and Canada the approval of the local exchange control must be obtained, when required, for payment by personal cheque.

Scientific enquiries should be addressed to : The Director, Commonwealth Bureau of Pastures and Field Crops, Hurley, Berkshire, England.

HERBAGE ABSTRACTS

The subscription rate for *Herbage Abstracts* is the same as for *Field Crop Abstracts*. *Herbage Abstracts*, issued quarterly, presents, in condensed form, the world's current scientific literature on grasslands, fodder crops and their management. A specimen copy will be sent on request.

The chief aim of this Bureau is to abstract all published results of current scientific research on annual field crops, herbage and fodders, and to make these abstracts available through our two quarterly journals, *Field Crop Abstracts* and *Herbage Abstracts*. To achieve this aim, the Bureau staff maintains a constant scrutiny of approximately 1000 periodicals, reports and occasional publications which reach us from more than 75 countries. A list of these periodicals and reports examined appeared in *Field Crop Abstracts*, Vol. 11, No. 1. The Bureau is always seeking to expand its coverage and suggestions for suitable additions to these lists will be appreciated. All scientific publications relating to annual field crops, herbage and fodder crops, particularly special reports and advance copies of papers, are required so that they may be abstracted and their contents made known to our readers with the minimum delay. *Field Crop Abstracts*, now in its 11th year, has a world-wide circulation.

Translations are not undertaken by the Bureau, neither can publications other than reprints be loaned, but arrangements can be made with an outside agency to supply photostat or microfilm copies at cost price.

Suggestions for review articles, or comments on those published in the journals, are invited.

The Director is always pleased to receive comments on *Field Crop Abstracts* and any suggestions for its improvement.

Where † follows the number which appears before the title of an abstract, it indicates that the abstract, or book review, is also reproduced in *Herbage Abstracts*.

The locality shown in square brackets in the title heading of an abstract indicates where the work reported was carried out.

'F.s.' at the end of an abstract indicates 'From summary'.

Eng., Span., Ger. etc. denote language used in summary.

Ext. = Extract.

For abstracts dealing with plantation crops, including sisal, sugar-cane and tobacco, see *Horticultural Abstracts*.

CORRIGENDUM

Vol. 11, No. 1, Abs. 196, line 9 should read: "... early attacks of *Sitona lineatus* ...."

FIELD CROP ABSTRACTS

Vol. 11, Nos. 1, 2, 3, and 4, 1958—SUMMARY OF CONTENTS

REVIEW ARTICLES

Recent developments in groundnut production, with special reference to Africa. Parts 1 and 2.	P. A. Oram	1 and 75
Sowing and thinning the sugar-beet crop. ...	P. N. Harvey	151
The effect of undersowing on the cereal cover crop.	A. H. Charles	233

ABSTRACT SECTION

	Pages
FIELD CROPS (ANNUAL)	
Cereals	7, 85, 161, 241
Wheat	
Buckwheat	
Oats	
Rye	
Barley	
Maize	
Sweet-corn	
Millets and sorghums	
Rice	
Quinoa	
General	
Legumes	31, 105, 185, 267
Cowpeas	
Soyabeans	
Groundnuts	
Peas	
Beans	
Pigeon peas	
Crotalaria spp.	
Vetch	
Chickpeas	
Lupins	
Bambarra groundnuts	
Cyamopsis psoraloides	
General	
Root crops	36, 109, 191, 274
Sugar-beet	
Fodder-beet and mangels	
Turnips	
Carrots	
Potatoes	
Sweet-potatoes	
Cassava	
Yams	
Cocoyams	
Jerusalem artichoke	
Kale	
General	
Fibre crops	47, 121, 200, 287
Cotton	
Fibre flax	
Hemp	
Jute	
Kenaf	
Hibiscus spp.	
Rushes	
Oil crops	52, 127, 206, 290
Sesame	
Oil-seed flax	
Safflower	
Sunflower	
Rape	
Mustard	
Sarson	
Niger seed	
Lallemantia iberica	
Poppy	
Crambe abyssinica	
Gold of Pleasure	
General	
CROP BOTANY	60, 135, 208, 293
Physiology	
Growth and reproduction	
Growth substances	
Nutrition	
Chemical analysis and composition	
Techniques and apparatus	
Radiobiology	
Miscellaneous	
WEEDS and WEED CONTROL	57, 133, 213, 300
SURVEYS and LAND USE	54, 129, 218, 304
Surveys	
Land use	
Land reclamation	
FARMING SYSTEMS and PRACTICES	55, 130, 220, 305
SOIL and WATER CONSERVATION	132, 221, 308
AGRICULTURAL METEOROLOGY and CLIMATOLOGY	65, 139, 222, 309
MISCELLANEOUS ...	66, 140, 223, 310
REPORTS	68, 141, 225, 312
BOOKS	70, 145, 226, 318
NEWS ITEMS and NOTES	74, 149, 232, 321
ANNUAL SUBJECT INDEX	323
ANNUAL AUTHOR INDEX	359

List of Periodicals and Reports Examined ... ... No. 1, p. i.

Of great and small

The Belgian Congo is a land of great and small. Of the Ituri pygmies—and the Watusi of neighbouring Ruanda, tallest of all men in Africa. Of the vast Congo river, streaming five miles wide through a thousand evergreen islands—and the devouring river of the blind driver ants. Of hippopotamus and elephant—and a small caterpillar which, uncontrolled, could wreck a major crop.

In the Congo basin, the oil palm grows readily. In the rainforest, wild and tall like a green-topped mop; in the plantations, soldier-ranked and short-stemmed. And vulnerable everywhere to a voracious pest, *Pimelephila ghesquierei*. This petiole-boring caterpillar attacks mainly the young trees and seedlings, causing severe leaf-loss. In a heavy infestation large numbers of young palms may be lost and control of this pest is a priority job throughout the oil-bearing forests of equatorial Africa.

To-day endrin, the powerful foliage insecticide developed by Shell, is effectively and economically controlling the caterpillar. Applied by knapsack sprayer at a dosage rate of up to 0·7 kg. per hectare (0·6 lb. per acre), endrin flows easily down to the base of the frond, there killing both the exposed larvæ and, frequently, the concealed insects in the galleries. *Persistence* is not the least of the qualities of this Shell insecticide—awarded the palm for protection of many important world crops.

Shell endrin

Adult *Pimelephila ghesquierei*

endrin, aldrin, dieldrin, D-D and Nemagon are SHELL *pesticides for world-wide use*

For further information apply to your Shell Company.

Issued by The Shell Petroleum Company Limited, London, E.C.3, England

LIST OF PERIODICALS AND REPORTS EXAMINED BY THE COMMONWEALTH BUREAU OF PASTURES AND FIELD CROPS

JANUARY, 1958

GEOGRAPHICAL INDEX

Africa .. .. *Page* iii
Australia .. .. „ iv
Austria .. .. „ v
Azores .. .. „ v
Belgium .. .. „ v
Bermuda .. .. „ vi
Burma .. .. „ vi
Canada .. .. „ vi
Ceylon .. .. „ vii
China .. .. „ vii
Cyprus .. .. „ vii
Czechoslovakia .. .. „ vii
Denmark .. .. „ vii
Fiji .. .. „ vii
Finland .. .. „ vii
Formosa (Taiwan) .. .. „ viii
France .. .. „ viii
Germany .. .. „ viii
Great Britain .. .. „ ix
Hawaii .. .. „ xii
Hong Kong .. .. „ xii
Hungary .. .. „ xiii
India .. .. „ xiii
Indonesia .. .. „ xiii
International .. .. „ xiv
Ireland, Republic of .. .. „ xiv
Israel .. .. „ xiv
Italy .. .. „ xiv
Japan .. .. „ xv
Madagascar .. .. *Page* xv
Malaya, Federation of .. .. „ xv
Mauritius .. .. „ xv
Netherlands .. .. „ xvi
New Caledonia .. .. „ xvi
New Zealand .. .. „ xvii
North Borneo .. .. „ xvii
Norway .. .. „ xvii
Pakistan .. .. „ xvii
Papua and New Guinea .. .. „ xvii
Philippine Republic .. .. „ xvii
Poland .. .. „ xviii
Portugal .. .. „ xviii
Réunion .. .. „ xviii
Romania .. .. „ xviii
Sarawak .. .. „ xviii
Seychelles .. .. „ xviii
Solomon Islands .. .. „ xviii
South and Central America .. .. .. „ xviii
Spain .. .. „ xx
Sweden .. .. „ xx
Switzerland .. .. „ xxi
Turkey .. .. „ xxi
USA .. .. „ xxi
USSR .. .. „ xxiv
West Indies .. .. „ xxiv
Yugoslavia .. .. „ xxv
Zanzibar .. .. „ xxv

LIST OF PERIODICALS* AND REPORTS EXAMINED BY THE COMMONWEALTH BUREAU OF PASTURES AND FIELD CROPS

JANUARY, 1958

TITLE	ABBREVIATION USED
AFRICA	
Agronomia Angolana	*Agron. angol.*
Annales de l'Institut Agricole et des Services de Recherches d'Expérimentation Agricole de l'Algérie	*Ann. Inst. agric. Algér.*
Boletim Cultural da Guiné Portuguesa	*Bol. cult. Guiné portug.*
Bulletin Agricole du Congo Belge	*Bull. agric. Congo belge*
Bulletin d'Information de l'Institut National pour l'Étude Agronomique du Congo Belge	*Bull. Inform. I.N.É.A.C.*
Bulletin de l'Institut du Désert d'Égypte	*Bull. Inst. Désert Égypte*
Bulletin de l'Institut d'Études Centrafricaines	*Bull. Inst. centrafr.*
East African Agricultural Journal	*E. Afr. agric. J.*
East African Farmer and Planter	*E. Afr. Fmr and Planter*
Farming in South Africa	*Fmg in S. Afr.*
Journal of the Botanical Society of South Africa	*J. bot. Soc. S. Afr.*
Journal of South African Botany	*J. S. Afr. Bot.*
Journal of the West African Science Association	*J.W. Afr. Sci. Ass.*
Kenya Farmer	*Kenya Fmr*
Kenya Information Office Fortnightly	*K.I.O. Fortnightly*
Monthly Bibliographical Bulletin of the Inter-African Bureau for Soils and Rural Economy	*Mon. bibl. Bull. B.I.S.*
New Ghana Farmer	*New Ghana Fmr*
Nigeria Trade Journal	*Niger. Tr. J.*
Nyasaland Farmer and Forester	*Nyasaland Fmr Forstr*
Onderstepoort Journal of Veterinary Research	*Onderstepoort J. vet. Res.*
Proceedings and Transactions of the Rhodesia Scientific Association	*Proc. Rhod. sci. Ass.*
Rapport du Conseil de l'Expérimentation et des Recherches Agronomiques. Algérie	*Rapp. Cons. Exp. Rech. agron., Algér.*
Rapport de l'Institut National pour l'Étude Agronomique du Congo Belge	*Rapp. I.N.É.A.C.*
Rapport de l'Institut de la Recherche Scientifique de l'Afrique Centrale	*Rapp. I.R.S.A.C.*
Record of Investigations. Department of Agriculture. Uganda.	*Rec. Invest. Dep. Agric. Uganda*
Report and Accounts. Tanganyika Agricultural Corporation.	*Rep. Tanganyika agric. Corp.*
Report of African Land Development in Kenya	*Rep. Afr. Ld Devel. Kenya*
Report of the Cameroons Development Corporation	*Rep. Cameroons Devel. Corp.*
Report of the South African Council for Scientific and Industrial Research	*Rep. C.S.I.R.*
Report of the Department of Agricultural and Veterinary Services. Somaliland	*Rep. Dep. agric. vet. Servs. Somalild*
Report of the Department of Agricultural Research. Nigeria	*Rep. Dep. agric. Res. Nigeria*
Report of the Department of Agriculture. Basutoland	*Rep. Dep Agric. Basutold*
Report of the Department of Agriculture. Bechuanaland	*Rep. Dep. Agric. Bechuanald*
Report of the Department of Agriculture. Ghana	*Rep. Dep. Agric. Ghana*
Report of the Department of Agriculture. Kenya	*Rep. Dep. Agric. Kenya*
Report of the Department of Agriculture. Northern Region of Nigeria	*Rep. Dep. Agric. N. Nigeria*
Report of the Department of Agriculture. Northern Rhodesia	*Rep. Dep. Agric. N. Rhod.*
Report of the Department of Agriculture. Nyasaland	*Rep. Dep. Agric. Nyasald*
Report of the Department of Agriculture. Sierra Leone	*Rep. Dep. Agric. Sierra Leone*

*The term periodicals as used here includes : journals, proceedings, transactions, reviews and yearbooks. Occasional bulletins and circulars are not included in the list. For key to numbers in brackets, see page xxv.

AFRICA—(*Continued*)

Report of the Department of Agriculture. Tanganyika	*Rep. Dep. Agric. Tanganyika*
Report of the Department of Agriculture. Uganda	*Rep. Dep. Agric. Uganda*
Report of the Department of Agriculture. Western Region of Nigeria	*Rep. Dep. Agric. W. Nigeria*
Report of the Department of Animal Health. Ghana	*Rep. Dep. Anim. Hlth. Ghana*
Report of the Department of Land Utilization. Swaziland	*Rep. Dep. Ld Util. Swazild*
Report of the Department of Veterinary Services. Bechuanaland	*Rep. Dep. vet. Servs. Bechuanald*
Report of the Department of Veterinary Services. Kenya	*Rep. Dep. vet. Servs. Kenya*
Report of the Department of Veterinary Services and Animal Industry. Nyasaland	*Rep. Dep. vet. Servs, anim. Industr. Nyasald*
Report of the Department of Veterinary Services and Animal Industry. Uganda	*Rep. Dep. vet. Servs, anim. Industr. Uganda*
Report of the East African Agriculture and Forestry Research Organization	*Rep. E. Afr. agric., for. Res. Org.*
Report of the East African Veterinary Research Organization	*Rep. E. Afr. vet. Res. Org.*
Report of the Forest Department. Kenya	*Rep. For. Dep. Kenya*
Report of the Frankenwald University Field Research Station	*Rep. Frankenwald Fld Res. Sta.*
Report of the Grain Storage Department. Tanganyika	*Rep. Grain Storage Dep. Tanganyika*
Report of the Grassland Research Station. Kitale	*Rep. Grassl. Res. Sta., Kitale*
Report of the Grasslands Agricultural Research Station. Marandellas	*Rep. Grassls agric. Res. Sta., Marandellas*
Report of the Henderson Research Station (8)	*Rep. Henderson Res. Sta.*
Report of the National Botanic Gardens. Kirstenbosch	*Rep. bot. Gdns, Kirstenbosh*
Report of the Produce Inspection Service of the Western Region of Nigeria.	*Rep. Prod. Inspect. Serv. W. Nigeria*
Report of the Secretary to the Federal Ministry of Agriculture. Rhodesia and Nyasaland	*Rep. Sec. Fed. Minist. Agric. Rhod. and Nyasald*
Report of the Tanganyika Sisal Growers' Association	*Rep. Tanganyika Sisal Gr. Ass.*
Report of the Tsetse Survey and Reclamation Department. Tanganyika	*Rep. Tsetse Surv. Reclam. Dep. Tanganyika*
Report of the Veterinary Department. Sierra Leone	*Rep. vet. Dep. Sierra Leone*
Report of the Veterinary Department. Tanganyika	*Rep. vet. Dep. Tanganyika*
Report of the West African Maize Research Unit	*Rep. W. Afr. Maize Res. Unit*
Report of the West African Rice Research Station. Rokupr	*Rep. W. Afr. Rice Res. Sta., Rokupr*
Research Review	*Res. Rev.*
Revue Agricole de l'Afrique du Nord (7)	*Rev. agric. Afr. N.*
Rhodesia Agricultural Journal	*Rhod. agric. J.*
Sols Africains (8)	*Sols afr.*
South African Journal of Science	*S. Afr. J. Sci.*
Tanganyika Notes and Records	*Tanganyika Notes*
Terre Marocaine (2)	*Terre maroc.*

AUSTRALIA

Agricultural Gazette of New South Wales	*Agric. Gaz. N.S.W.*
Aqua. Victoria	*Aqua, Vict.*
Australian Agricultural Newsletter	*Aust. agric. Newslett.*
Australian Journal of Agricultural Research	*Aust. J. agric. Res.*
Australian Journal of Biological Sciences	*Aust. J. biol. Sci.*
Australian Journal of Botany	*Aust. J. Bot.*
Australian Journal of Chemistry (8)	*Aust. J. Chem.*
Australian Journal of Experimental Biology and Medical Science	*Aust. J. exp. Biol. med. Sci.*
Australian Journal of Science	*Aust. J. Sci.*
Australian Veterinary Journal	*Aust. vet. J.*
Commonwealth Agriculturist	*Commonw. Agriculturist*
Contributions from the New South Wales National Herbarium	*Contr. N.S.W. Herbarium*
CSIRO Science Index	*CSIRO Sci. Index*
Journal of the Australian Institute of Agricultural Science	*J. Aust. Inst. agric. Sci.*
Journal of the Department of Agriculture of South Australia	*J. Dep. Agric. S. Aust.*

TITLE	ABBREVIATION USED
AUSTRALIA—(*Continued*)	
Journal of the Department of Agriculture of Victoria	*J. Dep. Agric. Vict.*
Journal of the Department of Agriculture of Western Australia	*J. Dep. Agric. W. Aust.*
Journal and Proceedings of the Royal Society of New South Wales	*J. roy. Soc. N.S.W.*
Journal of the Soil Conservation Service of New South Wales	*J. Soil Conserv. N.S.W.*
Papers of the Queensland University Department of Botany	*Pap. Qd Univ. Dep. Bot.*
Papers of the Queensland University Faculty of Agriculture	*Pap. Qd Univ. Fac. Agric.*
Pastoral Review and Grazier's Record	*Pastoral Rev.*
Proceedings of the Australian Society of Animal Production	*Proc. Aust. Soc. Anim. Prod.*
Proceedings of the Linnean Society of New South Wales (5)	*Proc. Linn. Soc. N.S.W.*
Proceedings of the Royal Society of Queensland	*Proc. roy Soc. Qd*
Quarterly Review of Agricultural Economics	*Quart. Rev. agric. Econ.*
Queensland Agricultural Journal	*Qd agric. J.*
Queensland Journal of Agricultural Science	*Qd J. agric. Sci.*
Report of the Australian and New Zealand Association for the Advancement of Science	*Rep. Aust. Ass. Adv. Sci.*
Report of the Bureau of Investigation. Queensland	*Rep. Bur. Invest. Qd*
Report of the Commonwealth Scientific and Industrial Research Organization	*Rep. C.S.I.R.O.*
Report of the Department of Agriculture. New South Wales.	*Rep. Dep. Agric. N.S.W.*
Report of the Department of Agriculture and Stock. Queensland	*Rep. Dep. Agric. Stock, Qd*
Report of the Department of Agriculture. Tasmania	*Rep. Dep. Agric. Tasm.*
Report of the Department of Agriculture. Western Australia	*Rep. Dep. Agric. W. Aust.*
Report of the Division of Plant Industry, Commonwealth Scientific and Industrial Research Organization	*Rep. Div. Pl. Industr., C.S.I.R.O.*
Report of the Minister of Agriculture for South Australia	*Rep. Minist. Agric. S. Aust.*
Report of the Soil Conservation Authority. Victoria	*Rep. Soil Conserv. Auth., Vict.*
Report of the University of Sydney School of Agriculture	*Rep. Sydney Univ. Sch. Agric.*
Report of the Waite Agricultural Research Institute. Glen Osmond	*Rep. Waite Agric. Res. Inst.*
Rural Research in the Commonwealth Scientific and Industrial Research Organization	*Rur. Res. C.S.I.R.O.*
South Pacific	*S. Pacif.*
Tasmanian Journal of Agriculture	*Tasm. J. Agric.*
Transactions of the Royal Society of South Australia (7)	*Trans. roy. Soc. S. Aust.*
Wildlife Research	*Wildl. Res.*
AUSTRIA	
Archiv für Meteorologie, Geophyisk und Bioklimatologie. Ser. B. Wien (7)	*Arch. Met., Wien*
Bericht über die Arbeitstagung. Gumpenstein	*Ber. Arbstag., Gumpenstein*
Bodenkultur	*Bodenkultur*
Pflanzenschutzberichte (3)	*PflSchBer.*
Versuchsergebnisse der Bundesversuchsanstalt für Alpenländische Landwirtschaft. Gumpenstein	*VersErgebn. BundesAnst. alp. Landw., Gumpenstein*
AZORES	
Boletim Comissão Reguladora dos Cereais do Arquipélago dos Açores (8)	*Bol. Com. reg. Cer. Açores*
BELGIUM	
Agricultura. Louvain (7)	*Agricultura, Louvain*
Annales de Gembloux	*Ann. Gembl.*
Bulletin du Comité National Belge de la F.A.O.	*Bull. Cté nat. belge F.A.O.*
Bulletin de l'Institut Agronomique et des Stations de Recherches de Gembloux	*Bull. Inst. agron., Gembl.*

BELGIUM—(*Continued*)

Bulletin du Jardin Botanique de l'État à Bruxelles	*Bull. Jard. bot., Brux.*
Bulletin de la Société Royale de Botanique de Belgique	*Bull. Soc. Bot. Belg.*
Mededelingen van de Landbouwhogeschool en de Opzoekingsstations van de Staat te Gent	*Meded. LandbHogesch., Gent*
Publications Techniques de l'Institut Belge pour l'Amélioration de la Betterave	*Publ. tech. Inst. belge Amélior. Better.*
Revue de l'Agriculture. Bruxelles	*Rev. Agric., Brux.*
Sucrerie Belge (7)	*Sucr. belge*

BERMUDA

Report of the Director of Agriculture. Bermuda	*Rep. Dir. Agric. Bermuda*

BURMA

Report on the Land Records Administration. Burma	*Rep. Ld Rec. Administ. Burma*

CANADA

Agricultural Institute Review	*Agric. Inst. Rev.*
Agriculture, Montréal	*Agriculture, Montréal*
Canada Handbook	*Canad. Handb.*
Canadian Journal of Animal Science	*Canad. J. Anim. Sci.*
Canadian Journal of Botany	*Canad. J. Bot.*
Canadian Journal of Microbiology	*Canad. J. Microbiol.*
Canadian Journal of Plant Science	*Canad. J. Pl. Sci.*
Canadian Journal of Soil Science	*Canad. J. Soil Sci.*
Canadian Journal of Zoology	*Canad. J. Zool.*
Contributions de l'Institut Botanique de l'Université de Montréal	*Contr. Inst. bot. Univ. Montréal*
Monthly Crop and Livestock Report. Ontario	*Mon. Crop Livestock Rep., Ontario*
Monthly Dairy Report. Ontario	*Mon. Dairy Rep., Ontario*
National Research Council Research News	*Nat. Res. Coun. Res. News*
National Research Council Review	*Nat. Res. Coun. Rev.*
Proceedings of the Canadian Society of Agronomy	*Proc. Canad. Soc. Agron.*
Proceedings of the Eastern Section, National Weed Committee	*Proc. E. Sect. Nat. Weed Cttee*
Proceedings of the Western Canadian Weed Control Conference	*Proc. W. Canad. Weed Contr. Conf.*
Proceedings of the Western Section, National Weed Committee	*Proc. W. Sect. Nat. Weed Cttee*
Progress Report of the Animal Husbandry Division. Canada Department of Agriculture. Experimental Farms Service	*Progr. Rep. Anim. Husb. Div., Canad. Dep. Agric., exp. Fms Serv.*
Progress Report of the Dominion Experimental Farm, Agassiz, British Columbia	*Progr. Rep. Dom. exp. Fm, B.C.*
Progress Report of Pasture Investigations. Canada Department of Agriculture. Experimental Farms Service	*Progr. Rep. Past. Invest., Canad. Dep. Agric., exp. Fms Serv.*
Report of the Department of Agriculture. Alberta	*Rep. Dep. Agric. Alberta*
Report of the Department of Agriculture. British Columbia	*Rep. Dep. Agric. B.C.*
Report of the Department of Agriculture. New Brunswick	*Rep. Dep. Agric. N. Brunswick*
Report of the Department of Agriculture. Ontario	*Rep. Dep. Agric. Ont.*
Report of the Department of Agriculture and Marketing. Nova Scotia	*Rep. Dep. Agric. Marktg, Nova Scotia*
Report of the Minister of Agriculture for Canada	*Rep. Minist. Agric. Canad.*
Report of the National Research Council. Ottawa	*Rep. nat. Res. Coun. Ottawa*
Report of the Quebec Society for the Protection of Plants	*Rep. Quebec Soc. Protect. Pl.*
Research Report Eastern Section, National Weed Committee	*Res. Rep. E. Sect. Nat. Weed Cttee*
Research Report Western Section, National Weed Committee	*Res. Rep. W. Sect. Nat. Weed Cttee*
Revue d'Oka	*Rev. Oka*
Transactions of the Royal Society of Canada. Section 5	*Trans. roy. Soc. Canad. 5*

TITLE	ABBREVIATION USED

CEYLON

Ceylon Journal of Science. Section A. Botany (7)	*Ceylon J. Sci. (A)*
Tropical Agriculturist	*Trop. Agriculturist*

CHINA

Acta Botanica Sinica (7)	*Acta bot. sinica*

CYPRUS

Countryman. Nicosia	*Countryman, Nicosia*
Report of the Agricultural Officer. Cyprus (Chemistry)	*Rep. Agric. Officer, Cyprus (Chem.)*
Report of the Department of Agriculture. Cyprus	*Rep. Dep. Agric. Cyprus*

CZECHOSLOVAKIA

Annals of the Czechoslovak Academy of Agricultural Sciences	*Ann. čsl. Acad. agric. Sci.*
{ Agricultural Economics Series	{ *Agric. Econ. Ser.*
{ Plant Production Series	{ *Pl. Prod. Ser.*
Sborník Vysoké Školy Zemédelské v Praze (Acta Univ. Agric., Praha)	*Sborn. Vysoké Skoly Zeméd. Praze*
Vědecké Práce	*Vědecké Práce*

DENMARK

Årsskrift Den Kongelige Veterinær- og Landbohøjskole	*Årsskr. K. vet. Landbhøjsk.*
Botaniske Tidsskrift (5)	*Bot. Tidsskr.*
Dansk botanisk Arkiv (5)	*Dansk bot. Ark.*
Dansk Frøavl	*Dansk Frøavl*
Dansk Landbrug	*Dansk Landbr.*
Lin	*Lin*
Naturens Verden. Kjøbenhavn (3)	*Nat. Verd., Kbh.*
Nordisk Jordbruksforskning	*Nord. JordbrForskn.*
Oikos	*Oikos*
Physiologia Plantarum (8)	*Physiol. Plant.*
Proceedings of the International Seed Testing Association	*Proc. internat. Seed Test. Ass.*
Tidsskrift for Planteavl	*Tidsskr. Planteavl*
Tolvmandsbladet	*Tolvmandsbladet*
Ugeskrift for Landmænd	*Ugeskr. Landm.*

FIJI

Agricultural Journal of Fiji	*Agric. J. Fiji*
Report of the Department of Agriculture. Fiji	*Rep. Dep. Agric. Fiji*

FINLAND

Annales Botanici Societatis Zoologicae-Botanicae Fennicae. Vanamo	*Ann. bot. Soc. zool.-bot. fenn., Vanamo*
Maatalous ja Koetoiminta	*Maatal. ja Koetoim.*
Maataloustieteelinen Aikakauskirja	*Maataloust. Aikakausk.*
Suomen Laidunyhdistyksen Vuosikirja	*Suomen. Laidunyhd. Vuosik.*
Suomen Maataloustieteellisen Seuran Julkaisuja	*Suom. Maataloust. Seur. Julk.*
Tidskrift för Lantmän	*Tidskr. Lantm.*
Valtion Maatalouskoetoiminnan Julkaisuja	*Valt. Maatalousk. Julk.*
Valtion Maatalouskoetoiminnan Tiedonantoja	*Valt. Maatalousk. Tiedon.*

TITLE	ABBREVIATION USED

FORMOSA (TAIWAN)

Journal of Agriculture and Forestry (10)	*J. Agric. For.*

FRANCE

Agronomie Tropicale. Nogent-sur-Marne	*Agron. trop., Nogent*
Annales Agronomiques	*Ann. agron., Paris*
Annales de l'Amélioration des Plantes	*Ann. Amélior. Pl., Paris*
Annales des Épiphyties. Paris (7)	*Ann. Épiphyt., Paris*
Annales des Sciences Naturelles. Botanique et Biologie Végétale (5)	*Ann. Sci. nat. Bot. Biol. vég.*
Annales Scientifiques de l'Université de Besançon. Série 2. [Botanique] (5)	*Ann. sci. Univ. Besançon Sér. 2 [Bot.]*
Année Biologique (5)	*Année biol.*
Bulletin Agronomique du Ministère de la France d'Outre-mer	*Bull. agron. Fr. d'out. mer*
Bulletin de la Société Botanique de France (5)	*Bull. Soc. bot. Fr.*
Bulletin de la Fédération Française d'Économie Alpestre	*Bull. Fèd. fr. Écon. alp.*
Bulletin du Muséum National d'Histoire Naturelle. Paris (5)	*Bull. Mus. Hist. nat., Paris*
Bulletin Technique d'Information (8)	*Bull. tech. Inform.*
Cellule (5)	*Cellule*
Comptes Rendus Hebdomadaires des Séances de l'Académie d'Agriculture de France	*C.R. Acad. Agric. Fr.*
Coton et Fibres Tropicales	*Cot. et Fibr. trop.*
Journal d'Agriculture Tropicale et de Botanique Appliquée	*J. Agric. trop. et Bot. appl.*
Mémoires de la Société Botanique de France (7)	*Mém. Soc. bot. Fr.*
Oléagineux	*Oléagineux*
Pomme de Terre Française	*Pomme d. Terre franç.*
Potasse	*Potasse*
Rapport de la Société d'Encouragement de la Culture des Orges de Brasserie et des Houblons en France	*Rapp. SECOBRAH*
Recueil des Travaux du Laboratoire de Botanique de la Faculté des Sciences de Caen (7)	*Rec. Trav. Lab. Bot., Caen*
Revue d'Élevage et de Médecine Vétérinaire des Pays Tropicaux (7)	*Rev. Elev.*
Revue Générale de Botanique (5)	*Rev. gén. Bot.*
Riz et Riziculture	*Riz et Rizicult.*
Sucrerie Française (7)	*Sucr. franç.*

GERMANY

Albrecht-Thaer-Archiv (3)	*Albr.-Thaer-Arch.*
Angewandte Botanik (2)	*Angew. Bot.*
Angewandte Chemie (5)	*Angew. Chem.*
Angewandte Pflanzensoziologie Stolzenau/Weser	*Angew. PflSoziol.*
Bayerisches Landwirtschaftliches Jahrbuch	*Bayer. landw. Jahrb.*
Beiträge zur Biologie der Pflanzen (5)	*Beitr. Biol. Pfl.*
Bericht über die Tätigkeit des Instituts für Grünlandwirtschaft, Braunschweig-Völkenrode	*Ber. Inst. Grünlandwirtschaft*
Bericht über die Tätigkeit des Instituts für Pflanzenbau und Saatguterzeugung der Forschungsanstalt für Landwirtschaft, Braunschweig-Völkenrode	*Ber. Inst. PflBau Saatgut. Forschungsanst. Landw.*
Berichte der Deutschen Botanischen Gesellschaft (5)	*Ber. dtsch. bot. Ges.*
Berichte und Vorträge der Deutschen Akademie der Landwirtschaftswissenschaften zu Berlin	*Ber. u. Vortr. dtsch. Akad. LandWiss.*
Biologisches Zentralblatt (2)	*Biol. Zbl.*
Botanische Jahrbücher. Stuttgart (5)	*Bot. Jahrb., Stuttgart*
Deutsche Landwirtschaft (3)	*Dtsch. Landw.*
Deutsche Landwirtschaftliche Presse	*Dtsch. landw. Pr.*
Flora. Jena (5)	*Flora, Jena*
Grünland (13)	*Grünland*

TITLE	ABBREVIATION USED
GERMANY—(*Continued*)	
Instituts-Berichte der Landwirtschaftlicher Fakultät der Martin-Luther-Universität, Halle-Wittenberg	*Inst.-Ber. landw. Fakult. Univ. Halle*
Jahrbuch der Deutschen Akademie der Landwirtschafts-wissenschaften zu Berlin (8)	*Jahrb. dtsch. Akad. LandWiss.*
Kartoffelbau (3)	*Kartoffelbau*
Kühn-Archiv	*KühnArchiv*
Landwirtschaft-Angewandte Wissenschaft	*Landw.-ang. Wissensch.*
Landwirtschaftliche Forschung	*Landw. Forsch.*
Mitteilungen der Bayerischen Landesanstalt für Tierzucht in Grub (8)	*Mitt. bayer. Landesanst. Tierzucht Grub*
Mitteilungen aus der Biologischen Bundesantalt für Land- und Forstwirtschaft. Berlin-Dahlem	*Mitt. biol. Bundesanst. Berl.*
Nachrichtenblatt des Deutschen Pflanzenschutzdienstes. Stuttgart (10)	*NachrBl. dtsch. PflSchDienst., Stuttgart*
Naturwissenschaften (5)	*Naturwissenschaften*
Planta. Archiv für wissenschaftliche Botanik (5)	*Planta*
Praktische Blätter für Pflanzenbau und Pflanzenschutz	*Prakt. Bl. PflBau*
Saatgutwirtschaft (3)	*Saatgutwirtschaft*
Zeitschrift für Acker- und Pflanzenbau	*Z. Acker- u. Pflbau*
Zeitschrift für Botanik (5)	*Z. Bot.*
Zeitschrift für Landwirtschaftliches Versuchs- und Untersuchungs-wesen. Rostock (3)	*Z. landw. Versuchs- u. Untersuchwes., Rostock*
Zeitschrift für Pflanzenernährung, Düngung, Bodenkunde	*Z. PflErnähr. Düng.*
Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz(2)	*Z. PflKrankh.*
Zeitschrift für Pflanzenzüchtung (10)	*Z. PflZücht.*
Züchter (2)	*Züchter*
GREAT BRITAIN	
Abstracts and News Summary of the Fungicide and Insecticidal Research Co-ordinating Services. Section C	*Abstr. Fung. Insect. Res. Co-ord. Serv. (C)*
Advancement of Science	*Advanc. Sci.*
Agricultural and Horticultural Engineering Abstracts	*Agric. hort. Engng Abstr.*
Agricultural History Review (8)	*Agric. Hist. Rev.*
Agricultural Merchant	*Agric. Merch.*
Agricultural Progress	*Agric. Progr.*
Agricultural Review. London (8)	*Agric. Rev., Lond.*
Agriculture. London	*Agriculture, Lond.*
Analyst. London (8)	*Analyst, Lond.*
Analytical Abstracts	*Anal. Abstr.*
Animal Breeding Abstracts	*Anim. Breed. Abstr.*
Annals of Applied Biology (8)	*Ann. appl. Biol.*
Annals of Botany (8)	*Ann. Bot., Lond.*
Applied Statistics (8)	*Appl. Statist.*
Berkshire Notes and News (8)	*Berks Notes and News*
Biochemical Journal (8)	*Biochem. J.*
Biological Reviews (8)	*Biol. Rev.*
Biometrika (8)	*Biometrika*
British Journal of Animal Behaviour (8)	*Brit. J. Anim. Behav.*
British Journal of Applied Physics (8)	*Brit. J. appl. Phys.*
British Journal of Nutrition (8)	*Brit. J. Nutr.*
British Sugar Beet Review	*Brit. Sug. Beet Rev.*
British Veterinary Journal (8)	*Brit. vet. J.*
Bulletin of Entomological Research	*Bull. ent. Res.*
Chemistry and Industry (8)	*Chem. and Industr.*
Colonial Plant and Animal Products	*Colon. Pl. Anim. Prod.*
Commonwealth Development	*Commonw. Devel.*
Commonwealth Phytopathological News	*Commonw. phytopath. News*

TITLE	ABBREVIATION USED
GREAT BRITAIN—(*Continued*)	
Dairy Farmer	*Dairy Fmr*
Dairy Science Abstracts	*Dairy Sci. Abstr.*
Discovery (8)	*Discovery*
Empire Cotton Growing Review	*Emp. Cott. Gr. Rev.*
Empire Journal of Experimental Agriculture	*Emp. J. exp. Agric.*
Endeavour	*Endeavour*
Essex Farmers' Journal	*Essex Fmrs' J.*
Experimental Husbandry (8)	*Exp. Husb.*
Farm. Dagenham	*Farm, Dagenham*
Farm Economist	*Fm Econ.*
Farm Guide	*Fm Guide*
Farm Implement and Machinery Review (8)	*Fm Impl. Rev.*
Farm Mechanization	*Fm Mechaniz.*
Farm Review	*Fm Rev.*
Farmer and Stock-Breeder	*Fmr and Stk-Breed.*
Farmer's Weekly	*Fmr's Wkly, Lond.*
Farming Review (8)	*Fmg Rev.*
Forestry Abstracts	*For. Abstr.*
Geographical Journal (5)	*Geogr. J.*
Helminthological Abstracts	*Helminth. Abstr.*
Heredity (5)	*Heredity*
Horticultural Abstracts	*Hort. Abstr.*
Institute of Meat Bulletin (8)	*Inst. Meat Bull.*
Journal of Agricultural Economics	*J. agric. Econ.*
Journal of Agricultural Engineering Research (8)	*J. agric. Engng Res.*
Journal of Agricultural Science (8)	*J. agric. Sci.*
Journal of the Agricultural Society, University College of Wales	*J. agric. Soc. Univ. Coll. Wales*
Journal of Animal Ecology (8)	*J. Anim. Ecol.*
Journal of the British Grassland Society	*J. Brit. Grassl. Soc.*
Journal of Comparative Pathology and Therapeutics (8)	*J. comp. Path.*
Journal of Documentation (8)	*J. Document.*
Journal of Ecology (8)	*J. Ecol.*
Journal of Experimental Botany	*J. exp. Bot.*
Journal of the Farmers' Club. London	*J. Fmrs' Cl., Lond.*
Journal of General Microbiology (8)	*J. gen. Microbiol.*
Journal of Genetics (5)	*J. Genet.*
Journal of Helminthology (8)	*J. Helminth.*
Journal of Horticultural Science (8)	*J. hort. Sci.*
Journal of the Institute of Brewing (11)	*J. Inst. Brew.*
Journal of the Institute of Corn and Agricultural Merchants, Ltd.	*J. Inst. Corn agric. Merch.*
Journal of the Land Agents' Society	*J. Land Agents' Soc.*
Journal of the National Institute of Agricultural Botany	*J. nat. Inst. agric. Bot.*
Journal of the Royal Agricultural Society	*J. roy. agric. Soc.*
Journal of the Royal Horticultural Society (8)	*J. roy. hort. Soc.*
Journal of the Royal Society of Arts (8)	*J. roy. Soc. Arts*
Journal of the Royal Statistical Society. Series B (8)	*J. R. statist. Soc. (B)*
Journal of the Science of Food and Agriculture (8)	*J. Sci. Fd Agric.*
Journal of Scientific Instruments (8)	*J. sci. Instrum.*
Journal of Soil Science	*J. Soil Sci.*
Journal of the Sports Turf Research Institute (8)	*J. Sports Turf Res. Inst.*
Journal of the Yorkshire Agricultural Society (8)	*J. Yorks agric. Soc.*
Kew Bulletin (8)	*Kew Bull.*
Laboratory Practice (8)	*Lab. Prac.*
Laden Wain (8)	*Laden Wain*
Manx Journal of Agriculture	*Manx J. Agric.*
Medical and Biological Illustration (8)	*Med. biol. Illus.*
Meteorological Magazine. London (8)	*Met. Mag., Lond.*

TITLE	ABBREVIATION USED
GREAT BRITAIN—(*Continued*)	
Milk Producer (8)	*Milk Prod.*
Monthly Digest of Statistics (8)	*Mon. Dig. Statist.*
Monthly Information Sheet. British Standards Institution (8)	*Mon. Inform. Sh. Brit. Stand. Inst.*
Monthly Report of the Ministry of Agriculture. Northern Ireland	*Mon. Rep. Minist. Agric. N. Ire.*
National Farmers' Union Information Service (8)	*N.F.U. Inform. Serv.*
Nature (8)	*Nature, Lond.*
New Commonwealth	*New Commonw.*
New Phytologist (8)	*New Phytol.*
New Scientist	*New Scient.*
Notes from the Royal Botanic Gardens. Edinburgh (2)	*Notes roy. bot. Gdns, Edinb.*
Nutrition Abstracts and Reviews	*Nutr. Abstr. Rev.*
Outlook on Agriculture	*Outlook on Agric.*
Parasitology. Cambridge (8)	*Parasitology, Camb.*
Parks, Golf Courses and Sports Grounds	*Parks*
Pesticide Abstracts and News Summary. Section C.	*Pest. Abstr. (C)*
Pig Breeders' Gazette (8)	*Pig Breed. Gaz.*
Pig Farming (8)	*Pig Fmg*
Plant Breeding Abstracts	*Pl. Breed. Abstr.*
Plant Pathology	*Pl. Path.*
Practical Power Farming. London	*Prac. Pwr Fmg, Lond.*
Proceedings of the Botanical Society of the British Isles (8)	*Proc. bot. Soc. Brit. Is*
Proceedings of the British Society of Animal Production	*Proc. Brit. Soc. Anim. Prod.*
Proceedings of the British Weed Control Conference	*Proc. Brit. Weed Contr. Conf.*
Proceedings of the Nutrition Society (8)	*Proc. Nutr. Soc.*
Proceedings of the Royal Society of Edinburgh. Section B (7)	*Proc. roy. Soc. Edinb. (B)*
Progress. London	*Progress, Lond.*
Progress Report from Experiment Stations. Empire Cotton Growing Corporation	*Progr. Rep. Exp. Stas. Emp. Cott. Gr. Corp.*
Quarterly Bulletin of the International Association of Agricultural Librarians and Documentalists	*Quart. Bull. internat. Assoc. agric. Librns Docums*
Quarterly Journal of the Royal Meteorological Society (2)	*Quart. J. roy. met. Soc.*
Quarterly Review. National Agricultural Advisory Service	*Quart. Rev. N.A.A.S.*
Quarterly Review of the Royal Agricultural Society of England	*Quart. Rev. roy. agric. Soc. Engl.*
Report of the Agricultural and Horticultural Research Station. University of Bristol. Long Ashton	*Rep. agric. hort. Res. Sta. Long Ashton*
Report of the Agricultural Improvement Council for England and Wales	*Rep. agric. Improve. Coun.*
Report of the Agricultural Research Institute of Northern Ireland	*Rep. agric. Res. Inst. N. Ire.*
Report of the Aynsome Laboratory	*Rep. Aynsome Lab.*
Report of the Colonial Development Corporation	*Rep. Colon. Devel. Corp.*
Report of the Committee for Colonial Agriculture, Animal Health and Forestry Research	*Rep. Cttee Col. Agric., anim. Hlth, for. Res.*
Report of the Commonwealth Agricultural Bureaux Executive Council. Farnham Royal	*Rep. Commonw. agric. Bur., Farnham Royal*
Report of the Department of Hop Research. Wye College	*Rep. Dep. Hop Res., Wye Coll.*
Report of the Directorate of Colonial (Geodetic and Topographical) Surveys	*Rep. Dir. colon. Survs*
Report of the East Malling Research Station (8)	*Rep. E. Malling Res. Sta.*
Report of the Edinburgh and East of Scotland College of Agriculture	*Rep. Edinb. Coll. Agric.*
Report of the Experimental and Research Station. Cheshunt	*Rep. exp. Res. Sta., Cheshunt*
Report of the Food Investigation Board	*Rep. Fd Invest. Bd*
Report of the Glasgow and West of Scotland Agricultural College	*Rep. W. Scot. agric. Coll.*
Report of the Hannah Dairy Research Institute	*Rep. Hannah Dairy Inst.*
Report of the Imperial Forestry Institute. Oxford	*Rep. imp. for. Inst. Oxf.*
Report of the John Innes Horticultural Institution	*Rep. Innes hort. Instn*
Report of the Macaulay Institute for Soil Research	*Rep. Macaulay Inst. Soil Res.*
Report of the Medical Research Council	*Rep. Med. Res. Counc.*
Report on the National Agricultural Advisory Service	*Rep. N.A.A.S.*

GREAT BRITAIN—(*Continued*)

Report of the National Institute of Agricultural Botany. Cambridge	*Rep. nat. Inst. agric. Bot., Camb.*
Report of the National Institute of Agricultural Engineering (8)	*Rep. N.I.A.E.*
Report of the National Institute for Research in Dairying. Reading University (8)	*Rep. nat. Inst. Dairy., Reading*
Report of the National Vegetable Research Station. Wellesbourne, Warwick	*Rep. nat. veg. Res. Sta., Warwick*
Report of the Norfolk Agricultural Station	*Rep. Norfolk agric. Sta.*
Report of the Nottingham University School of Agriculture (8)	*Rep. Nottingham Univ. Sch. Agric.*
Report of the Pea-growing Research Organization Ltd.	*Rep. Pea-growing Res. Org. Ltd.*
Report of the Principal to the Governing Body. Wye College	*Rep. Govern. Body, Wye Coll.*
Report of the Rothamsted Experiment Station	*Rep. Rothamsted exp. Sta.*
Report of the Scottish Society for Research in Plant Breeding	*Rep. Scot. Soc. Res. Pl. Breed.*
Report of the States Experimental Station. Jersey	*Rep. States exp. Sta., Jersey*
Report of Trial and Experimental Work. Throws, Little Dunmow	*Rep. exp. Wk Throws*
Research. London (2)	*Research, Lond.*
Research and Experimental Record of the Ministry of Agriculture. Northern Ireland	*Res. exp. Rec. Minist. Agric. N. Ire.*
Review of Applied Entomology	*Rev. appl. Ent.*
Review of Applied Mycology	*Rev. appl. Mycol.*
Scottish Agriculture	*Scot. Agric.*
Seed Trade Review	*Seed Tr. Rev.*
Shell Magazine	*Shell Mag.*
Soils and Fertilizers	*Soils and Ferts*
Sports Turf Bulletin	*Sports Turf Bull.*
Suffolk Farmers' Journal	*Suffolk Fmrs' J.*
Times Review of British Colonies (8)	*Times Rev. Brit. Colon.*
Times Review of Science (8)	*Times Rev. Sci.*
Transactions of the British Mycological Society (8)	*Trans. Brit. mycol. Soc.*
Transactions and Proceedings of the Botanical Society of Edinburgh (5)	*Trans. bot. Soc. Edinb.*
Transactions of the Royal Highland and Agricultural Society of Scotland	*Trans. roy. Highl. agric. Soc. Scot.*
Veterinary Bulletin. Weybridge (8)	*Vet. Bull., Weybridge*
Veterinary Medicine	*Vet. Med.*
Veterinary Record (8)	*Vet. Rec.*
Veterinary Reviews and Annotations (8)	*Vet. Rev. Annot.*
Watsonia (8)	*Watsonia*
Weather	*Weather*
Weed Abstracts	*Weed Abstr.*
Worcestershire Agricultural Chronicle (8)	*Worcs. agric. Chron.*
World Crops	*World Crops*
Yearbook of the Association of the Green Crop Driers	*Yearb. Ass. Green Crop Driers*

HAWAII

Hawaii Farm Science	*Hawaii Fm Sci.*
Hawaiian Planters' Record (10)	*Hawaii. Planters' Rec.*
Pacific Science. Hawaii (4)	*Pacif. Sci., Hawaii*
Report of the Agricultural Experiment Station. Hawaii	*Rep. agric. Exp. Sta., Hawaii*

HONG KONG

Report of the Department of Agriculture, Fisheries and Forestry. Hong Kong	*Rep. Dep. Agric., Fish., For. Hong Kong*

TITLE	ABBREVIATION USED
HUNGARY	
Acta Agronomica Hungarica	*Acta agron. hung.*
Acta Biologica Hungarica	*Acta biol. hung.*
Agrokémia és Talajtan	*Agrokémia és Talaj.*
Az Agrártudományi Egyetem Állattenyésztési Karának Közleményei	*Az. Agrár. Egyetem Állatten. Karának Közlem.*
Hungarian Agricultural Review	*Hung. agric. Rev.*
Növénytermelés	*Növénytermelés*
INDIA	
Agra University Journal of Research (6)	*Agra Univ. J. Res. (Sci.)*
Allahabad Farmer	*Allahabad Fmr*
Bulletin of the Botanical Society of Bengal (7)	*Bull. bot. Soc. Beng.*
Central Board of Irrigation Abstracts	*Cent. Bd Irrig. Abstr.*
Current Science	*Curr. Sci.*
Farmer. Bombay	*Farmer, Bombay*
Indian Cotton Growing Review	*Indian Cott. Gr. Rev.*
Indian Farming	*Indian Fmg*
Indian Journal of Agricultural Science	*Indian J. agric. Sci.*
Indian Journal of Agronomy	*Indian J. Agron.*
Indian Journal of Genetics and Plant Breeding	*Indian J. Genet.*
Indian Journal of Veterinary Science and Animal Husbandry	*Indian J. vet. Sci.*
Indian Oilseeds Journal	*Indian Oilseeds J.*
Indian Phytopathology (7)	*Indian Phytopath.*
Indian Veterinary Journal (9)	*Indian vet. J.*
INSDOC List of Current Scientific Literature	*INSDOC List Curr. sci. Lit.*
Journal of the Indian Botanical Society (5)	*J. Indian bot. Soc.*
Journal of the Indian Society of Soil Science	*J. Indian Soc. Soil Sci.*
Journal of Scientific and Industrial Research. New Delhi (7)	*J. sci. industr. Res., New Delhi*
Journal of Scientific Research. Banaras Hindu University	*J. sci. Res., Banaras*
Journal of Soil and Water Conservation in India	*J. Soil Wat. Conserv., India*
Journal of the University of Bombay. Section B (3)	*J. Univ. Bombay (B)*
Jute Bulletin	*Jute Bull.*
Madras Agricultural Journal	*Madras agric. J.*
Mysore Agricultural Calendar and Year Book	*Mysore agric. Calendar Yearb.*
Mysore Agricultural Journal	*Mysore agric. J.*
Phytomorphology (8)	*Phytomorphology*
Plant Protection Bulletin	*Pl. Prot. Bull.*
Poona Agricultural College Magazine (3)	*Poona agric. Coll. Mag.*
Proceedings of the Bihar Academy of Agricultural Science (7)	*Proc. Bihar Acad. agric. Sci.*
Proceedings of the Indian Academy of Science. Part B (3)	*Proc. Indian Acad. Sci. (B)*
Proceedings of the National Institute of Sciences. India. Parts A and B	*Proc. nat. Inst. Sci. India (A) (B)*
Report of the Bose Research Institute (8)	*Rep. Bose Res. Inst.*
Report of the Central Jute Committee	*Rep. cent. Jute Cttee*
Report of the Central Rice Research Institute. Cuttack	*Rep. Rice Res. Inst., Cuttack*
Report of the Department of Agriculture. Mysore State. Administration	*Rep. Dep. Agric. Mysore. Adm.*
Report of the Indian Central Cotton Committee	*Rep. Indian Cott. Cttee*
Report of the Indian Council of Agricultural Research. New Delhi	*Rep. Indian Coun. agric. Res., New Delhi*
Report of the Institute of Plant Industry. Indore	*Rep. Inst. Pl. Industr., Indore*
Rice News Teller	*Rice News Tell.*
Science and Culture	*Sci. and Cult.*
Transactions of the Bose Research Institute (8)	*Trans. Bose Res. Inst.*
INDONESIA	
Annales Bogorienses (5)	*Ann. bogor.*
Indonesian Journal for Natural Science	*Indones. J. nat. Sci.*
Landbouw (2)	*Landbouw*

TITLE	ABBREVIATION USED

INTERNATIONAL

Report of the Barley Committee. European Brewery Convention	*Rep. Barley Cttee Europ. Brew. Conv.*
Development Papers (F.A.O.)	*Devel. Pap. F.A.O*
Fatis Review (O.E.E.C.)	*Fatis Rev.*
International Rice Commission News Letter (F.A.O.)	*Internat. Rice Comm. News Lett.*
Plant Protection Bulletin	*Pl. Prot. Bull.*
Quarterly Bulletin of the International Association of Agricultural Librarians and Documentalists	*Quart. Bull. internat. Ass. agric. Lib. Document.*
Unesco Bulletin for Libraries	*Unesco Bull. Lib.*

IRELAND, REPUBLIC OF

Agricultural Ireland (8)	*Agric. Ire.*
Journal of the Department of Agriculture. Republic of Ireland	*J. Dep. Agric. Republ. Ire.*
Notes from the Botanical School, Trinity College, Dublin (7)	*Notes bot. Sch. Trin. Coll., Dublin*
Report of the Minister for Agriculture. Republic of Ireland	*Rep. Minist. Agric. Republ. Ire.*
Scientific Proceedings of the Royal Dublin Society	*Sci. Proc. roy. Dublin Soc.*

ISRAEL

Bulletin of the Research Council. Israel. Section D	*Bull. Res. Coun. Israel. (D)*
Ktavim. Records of the Agricultural Research Station. Israel	*Ktavim, Israel*
Palestine Journal of Botany. Jerusalem Series	*Palest. J. Bot. J. Ser.*

ITALY

Agricoltura delle Venezie (3)	*Agricultura d. Venezie*
Agricoltura Italiana	*Agricoltura ital.*
Allionia (7)	*Allionia*
Annali di Botanica. Roma (12)	*Ann. Bot., Roma*
Annali della Facoltà di Agraria. Università di Milano	*Ann. Fac. Agr., Milano*
Annali della Facoltà di Agraria. Università di Perugia (3)	*Ann. Fac. Agr., Perugia*
Annali della Facoltà di Agraria. Università del S. Cuore. Milano	*Ann. Fac. Agr., S. Cuore*
Annali della Sperimentazione Agraria	*Ann. Sper. agr.*
Annali della Stazione Chimico-Agraria Sperimentale di Roma	*Ann. Sta. chim.-agr., Roma*
Annali della Stazione Sperimentale di Risicoltura. Vercelli	*Ann. Sta. sper. Risicolt., Vercelli*
Genetica Agraria (3)	*Genet. agr.*
Giornale di Agricoltura della Domenica	*G. Agric. Domen.*
Industria Saccarifera Italiana	*Industr. saccar. ital.*
Italia Agricola	*Ital. agric.*
Maydica	*Maydica*
Nuovo Giornale Botanico Italiano	*Nuovo G. bot. ital.*
Rapporto della Stazione Sperimentale Agraria di Bari	*Rapp. Sta. sper. agr., Bari*
Rapporto della Stazione Sperimentale di Bieticoltura di Rovigo	*Rapp. Sta. sper. Bieticolt., Rovigo*
Rapporto della Stazione Sperimentale di Granicoltura di Catania	*Rapp. Sta. sper., Granicolt., Catania*
Rapporto della Stazione Sperimentale di Maiscoltura di Bergamo	*Rapp. Sta. sper. Maiscolt., Bergamo*
Rapporto della Stazione Sperimentale di Praticoltura di Lodi	*Rapp. Sta. sper. Praticolt., Lodi*
Ricerca Scientifica	*Ric. sci.*
Riso	*Riso*
Rivista di Agricoltura Subtropicale e Tropicale (2)	*Riv. Agric. subtrop.*
Rivista di Zootecnia. Milano (1)	*Riv. Zootec., Milano*
Sementi Elette (3)	*Sementi elette*
Webbia (7)	*Webbia*

TITLE	ABBREVIATION USED

JAPAN

Annals of the Phytopathological Society of Japan (10)	*Ann. phytopath. Soc. Japan*
Berichte des Ohara Instituts für Landwirtschaftliche Biologie	*Ber. Ohara Inst.*
Botanical Magazine. Toyko (10)	*Bot. Mag., Tokyo*
Bulletin of the Faculty of Agriculture. Miyazaki University	*Bull. Fac. Agric., Miyazaki*
Bulletin of the Faculty of Agriculture. Shinshu University (3)	*Bull. Fac. Agric., Shinshu*
Bulletin of the Institute of Agricultural Research. Tôhoku (3)	*Bull. Inst. agric. Res., Tôhoku*
Bulletin of the Yamagata University (Agricultural Science) (3)	*Bull. Yamagata Univ. (Agric. Sci.)*
Ecological Review. Tôhoku (5)	*Ecol. Rev., Tôhoku*
Japanese Journal of Botany (5)	*Japan. J. Bot.*
Journal of the Faculty of Agriculture. Kyushu University	*J. Fac. Agric., Kyushu*
Journal of the Faculty of Agriculture. Tottori University	*J. Fac. Agric., Tottori*
Journal of the Faculty of Science, Hokkaido University. Series Botany (10)	*J. Fac. Sci., Hokkaido. Ser. Bot.*
Journal of the Horticultural Association of Japan (2)	*J. hort. Ass. Japan*
Journal of the Science of Soil and Manure. Tokyo	*J. Sci. Soil, Tokyo*
Memoirs of the Ehime University. Section 6	*Mem. Ehime Univ. 6*
Memoirs of the Faculty of Agriculture. Miyazaki University	*Mem. Fac. Agric. Miyazaki*
Memoirs of the Hyogo Prefectural University of Agriculture (8)	*Mem. Hyogo Prefect. Univ. Agric.*
Proceedings of the Crop Science Society of Japan	*Proc. Crop Sci. Soc. Japan*
Proceedings of the Japan Academy (8)	*Proc. Japan Acad.*
Records of Researches, Faculty of Agriculture. Tokyo University	*Rec. Res. Fac. Agric., Tokyo*
Report of the National Institute of Genetics	*Rep. nat. Inst. Genet.*
Reports of the Institute for Agricultural Research. Tôhoku University. Series D	*Rep. Inst. agric. Res. Tôhoku (D)*
Science Bulletin of the Faculty of Agriculture. Kyushu University (8)	*Sci. Bull. Fac. Agric., Kyushu*
Scientific Reports of the Matsuyama Agricultural College	*Sci. Rep. Matsuyama Agric. Coll.*
Soil and Plant Food	*Soil Pl. Fd*
Technical Bulletin of the Kagawa Agricultural College	*Tech. Bull. Kagawa agric. Coll.*
Tôhoku Journal of Agricultural Research (5)	*Tôhoku J. agric. Res.*

MADAGASGAR

Bulletin de Madagascar	*Bull. Madagascar*
Mémoires de l'Institut Scientifique de Madagascar (7)	*Mém. Inst. sci. Madagascar*
Rapport de l'Inspection Générale du Service Agricole et de la Recherche Agronomique. Madagascar	*Rapp. Inspect. gen. Serv. agric. Rech. agron. Madagascar*

MALAYA, FEDERATION OF

Garden's Bulletin. Singapore (7)	*Gdn's Bull.*
Malayan Agricultural Journal	*Malay. agric. J.*
Malayan Journal of Tropical Geography (5)	*Malay. J. trop. Geogr.*
Report of the Botanical Gardens, Department of Agriculture. Singapore	*Rep. bot. Gdns, Dep. Agric., Singapore*
Report of the Department of Agriculture. Malaya	*Rep. Dep. Agric. Malaya*

MAURITIUS

Report of the Department of Agriculture. Mauritius	*Rep. Dep. Agric. Mauritius*
Revue Agricole et Sucrière de l'Ile Maurice (2)	*Rev. agric. suc. Maurice*
Report of the Mauritius Institute	*Rep. Mauritius Inst.*
Report of the Sugar Industry Research Station. Mauritius	*Rep. Sug. Industr. Res. Sta. Mauritius*

TITLE	ABBREVIATION USED

NETHERLANDS

Acta Botanica Néerlandica (5)	*Acta bot. néerl.*
Antonie van Leeuwenhoek ; Nederlandsch tijdschrift voor hygiëne, microbiologie en serologie (5)	*Leeuwenhoek ned. Tijdschr.*
Biochimica et Biophysica Acta (5)	*Biochim. biophys. Acta*
Blumea (5)	*Blumea*
Conserva (7)	*Conserva*
Euphytica	*Euphytica*
Jaarboekje van het Nationaal Comité voor Brouwgerst	*Jaarb. NaCoBrouw.*
Jaarboekje Nederlands Graan-Centrum	*Jaarb. Ned. Graan-Centrum*
Jaarboekje van de Stichting voor Coördinatie van Cultuur en Onderzoek van Broodgraan	*Jaarb. CoCoBro.*
Jaarverslag. Landbouw-Economisch Instituut	*Jaarversl. Landb.-Econ. Inst.*
Jaarverslag. Nederlandse Algemene Keuringsdienst	*Jaarversl. ned. Keuringsd.*
Jaarverslag. Stichting C.L.O. Centrale (8)	*Jaarversl. Sticht. C.L.O. Cent.*
Landbouwdocumentatie	*LandbDocum.*
Landbouwkundig Tijdschrift. Wageningen	*Landbouwk. Tijdschr., Wageningen*
Landbouwmechanisatie	*LandbMechanisatie*
Landbouwvoorlichting	*LandbVoorl.*
Materiae Vegetabiles (2)	*Materiae veg.*
Mededelingen van het botanisch Museum en Herbarium van de Rijks-Universiteit te Utrecht (5)	*Med. bot. Mus. Rijksuniv. Utrecht*
Mededelingen van het Instituut voor Rationele Suikerproductie	*Meded. Inst. rat. Suikerprod.*
Mededelingen van de Landbouwhogeschool. Wageningen	*Meded. LandbHogesch., Wageningen*
Mededelingen van de Landbouwvoorlichtingsdienst. Wageningen	*Meded. LandbVoorlDienst, Wageningen*
Mededeelingen. Nationale Coöperatieve Aan- en Verkoopvereniging voor de Landbouw. " Centraal Bureau " G.A.	*Meded. nat coöp. Aan- en Verkoopv. Landb. Cent. Bur.*
Mededelingen van de Nederlandse Algemene Keuringsdienst voor Landbouwzaden en Aardappelpootgoed	*Meded. N.A.K.*
Nematologica (8)	*Nematologica*
Netherlands Journal of Agricultural Science	*Neth. J. agric. Sci.*
Plant and Soil (8)	*Plant and Soil*
Rapport van de Commissie ter Bevordering der Suikerbietenteelt in de Noordelijke Provinciën	*Rapp. Comm. Bevord. Suikerbiet. Noord. Prov.*
Stikstof	*Stikstof*
Technische Berichten Peulvruchten Studie Combinatie	*Tech. Ber. Peulvrucht.*
Tijdschrift over Plantenziekten (2)	*Tijdschr. PlZiekt.*
TNO Nieuws	*TNO Nieuws*
Tropical Abstracts	*Trop. Abstr.*
V.C.S. Bode	*V.C.S. Bode*
Vegetatio, Acta Geobotanica. Haag	*Vegetatio, Haag*
Verslag. Instituut voor Bewaring en Verwerking van Landbouwproducten	*Versl. Inst. Bewar. Verwerk. LandbProd.*
Verslag. Instituut voor Biologisch en Scheikundig Onderzoek van Landbouwgewassen	*Versl. Inst. Biol. Scheik. Onderz. Landbouw.*
Verslag. Instituut voor Plantenveredeling	*Versl. Inst. PlVered.*
Verslag. Instituut voor Toegepast Biologisch Onderzoek in de Natuur	*Versl. Inst. Toegep. biol. Onderz. Nat.*
Verslag over de Landbouw in Nederland	*Versl. Landb. Ned.*
Verslag. Proefstation voor de Akker- en Weidebouw	*Versl. Proefstat. Akker. Weidebouw*
Verslag. Rijkslandbouwproefstation. Groningen	*Versl. Rijkslandb. Proefsta., Groningen*

NEW CALEDONIA

Quarterly Bulletin of the South Pacific Commission	*Quart. Bull. S. Pacif. Comm.*

TITLE	ABBREVIATION USED

NEW ZEALAND

Agricultural Bulletin of the Canterbury Chamber of Commerce	*Agric. Bull. Canterbury (N.Z.)*
Dairy Farming Annual	*Dairy-fmg Annu.*
New Zealand Geographer	*N.Z. Geogr*
New Zealand Geographical Society Record	*N.Z. geogr. Soc. Rec.*
New Zealand Journal of Agricultural Research	*N.Z. J. agric. Res.*
New Zealand Journal of Agriculture	*N.Z. J. Agric.*
New Zealand Journal of Geology and Geophysics	*N.Z. J. Geol. Geophysics*
New Zealand Journal of Science	*N.Z. J. Sci.*
New Zealand Official Yearbook	*N.Z. off. Yearb.*
Proceedings of the Lincoln College Farmers' Conference	*Proc. Lincoln Coll. Fmrs' Conf.*
Proceedings of the New Zealand Grassland Association Conferences	*Proc. N.Z. Grassl. Ass. Confs*
Proceedings of the New Zealand Society of Animal Production	*Proc. N.Z. Soc. Anim. Prod.*
Proceedings of the New Zealand Weed Control Conference	*Proc. N.Z. Weed Contr. Conf*
Proceedings of the Ruakura Farmers' Conference	*Proc. Ruakura Fmrs' Conf.*
Report of the Canterbury Agricultural College	*Rep. Canterbury (N.Z.) agric. Coll.*
Report of the Cawthron Institute for Scientific Research	*Rep. Cawthron Inst.*
Report of the Department of Agriculture. New Zealand	*Rep. Dep. Agric. N.Z.*
Report of the Department of Scientific and Industrial Research. New Zealand	*Rep. Dep. Sci. industr. Res. N.Z.*
Sheep-Farming Annual	*Sheep-fmg Annu.*
Transactions and Proceedings of the Royal Society of New Zealand (5)	*Trans. roy. Soc. N.Z.*

NORTH BORNEO

Report of the Department of Agriculture. North Borneo	*Rep. Dep. Agric. N. Borneo*

NORWAY

Forskning og Forsøk i Landbruket	*Forskn. Fors. Landbr.*
Meddelelser fra det Norske Myrselskap	*Medd. norske Myrselsk.*
Meldinger fra Norges Landbrukshøiskole	*Meld. Norg. LandbrHøisk.*
Melding fra Statens Frøkontroll i Ås	*Meld. Stat. Frøkontroll Ås*
Norske Fjellbeite	*Norske Fjellb.*
Norsk Landbruk	*Norsk. Landbr.*
Tidsskrift for det Norske Landbruk	*Tidsskr. norske Landbr.*

PAKISTAN

Pakistan Cottons (3)	*Pakist. Cotts*
Pakistan Journal of Forestry (4)	*Pakist. J. For.*
Pakistan Journal of Science	*Pakist. J. Sci.*
Pakistan Journal of Scientific Research	*Pakist. J. sci. Res.*

PAPUA AND NEW GUINEA

Agricultural Journal of Papua and New Guinea	*Agric. J. Papua*

PHILIPPINE REPUBLIC

Philippine Agriculturist (2)	*Philipp. Agriculturist*
Philippine Journal of Agriculture (2)	*Philipp. J. Agric.*
Philippine Journal of Science (10)	*Philipp. J. Sci.*

TITLE	ABBREVIATION USED
POLAND	
Acta Agrobotanica (7)	*Acta Agrobot.*
Acta Microbiologica Polonica	*Acta. microbiol. Polon.*
Bulletin de l'Académie Polonaise des Sciences (8)	*Bull. Acad. polon. Sci.*
Polish Technical Abstracts (4)	*Pol. tech. Abstr.*
Review of the Polish Academy of Science	*Rev. Polish Acad. Sci.*
Roczniki Nauk Rolniczych	*Roczn. Nauk rol.*
PORTUGAL	
Agronomia Lusitana	*Agron. lusit.*
Agros. Lisboa	*Agros, Lisboa*
Anais do Instituto Superior de Agronomia. Lisboa	*An. Inst. sup. Agron., Lisboa*
Boletim da Sociedade Broteriana	*Bol. Soc. broteriana*
Garcia da Orta. Lisboa	*Garcia de Orta, Lisboa*
Melhoramento (8)	*Melhoramento*
Memórias de Sociedade Broteriana	*Mem. Soc. broteriana*
Portugaliae Acta Biologica. Series A	*Portug. Acta biol. (A)*
Portugaliae Acta Biologica. Series B	*Portug. Acta biol. (B)*
REUNION	
Revue Agricole de l'Ile de Réunion (3)	*Rev. agric. Réunion*
ROMANIA	
Analele Institutului de Cercetări Agronomice	*Anal. Inst. Cercetări agron.*
SARAWAK	
Report of the Department of Agriculture. Sarawak	*Rep. Dep. Agric. Sarawak*
Sarawak Museum Journal	*Sarawak Mus. J.*
SEYCHELLES	
Report of the Department of Agriculture. Seychelles	*Rep. Dep. Agric. Seychelles*
SOLOMON ISLANDS	
Report of the Department of Agriculture. Solomon Islands	*Rep. Dep. Agric. Solomon Is*
SOUTH AND CENTRAL AMERICA	
ARGENTINA	
Anales de la Sociedad Científica Argentina	*An. Soc. cient. argent.*
Boletín de Producción y Fomento Agrícola. Buenos Aires	*Bol. Prod. Fom. agric., B. Aires*
Darwiniana. Buenos Aires	*Darwiniana, B. Aires*
Idia	*Idia*
Lilloa	*Lilloa*
Meteoros. Buenos Aires	*Meteoros, B. Aires*
Phyton	*Phyton*
Revista Agrónomica Noroeste Argentino	*Rev. agron. Noroeste argent.*
Revista Argentina de Agronomía	*Rev. argent. Agron.*
Revista de la Facultad de Agronomía y Veterinaria. Buenos Aires.	*Rev. Fac. Agron., B. Aires*
Revista de la Facultad de Agronomía. La Plata	*Rev. Fac. Agron., La Plata*

SOUTH AND CENTRAL AMERICA—(*Continued*)

Revista de la Facultad de Ciencias Agrarias. Mendoza	*Rev. Fac. Cienc. agr., Mendoza*
Revista Industrial y Agrícola de Tucumán	*Rev. industr. agríc., Tucumán*
Revista de Investigaciones Agrícolas. Buenos Aires	*Rev. Invest. agríc., B. Aires*
BRAZIL	
Agronomia. Rio de Janeiro	*Agronomia, Rio de J.*
Agronômico. Campinas	*Agronômico, Campinas*
Agros. Pelotas	*Agros, Pelotas*
Anais da Escola Superior de Agricultura. Luis de Queiroz	*An. Esc. Agric., Queiroz*
Archivos do Instituto Biológico. São Paulo (5)	*Arch. Inst. biol., S. Paulo*
Archivos do Jardim Botânico. Rio de Janeiro	*Arch. Jard. bot., Rio de J.*
Archivos do Serviço Florestal do Brasil	*Arch. Serv. flor. Brasil*
Biológico. São Paulo (3)	*Biológico, S. Paulo*
Boletim da Directoria da Produção Animal	*Bol. Dir. Prod. anim.*
Boletim de Indústria Animal	*Bol. Industr. anim.*
Bragantia	*Bragantia*
Lavoura Arrozeira	*Lavour. arroz.*
Revista de Agricultura. Piracicaba	*Rev. Agric., Piracicaba*
Revista Ceres. Minas Gerais.	*Ceres, Minas Gerais*
Revista dos Criadores	*Rev. Criad.*
Rodriguesia	*Rodriguesia*
Sellowia	*Sellowia*
BRITISH GUIANA	
Administration Report of the Department of Agriculture. British Guiana	*Admin. Rep. Dep. Agric. Brit. Guiana*
Agriculture in British Guiana	*Agric. Brit. Guiana*
Report of the Meteorology of British Guiana	*Rep. Met. Brit. Guiana*
CHILE	
Agricultura Técnica. Santiago de Chile	*Agric. téc., Santiago*
COLOMBIA	
Acta Agronómica. Palmira	*Acta agron., Palmira*
Agricultura Tropical. Bogotá	*Agric. trop., Bogotá*
Revista de la Facultad Nacional de Agronomía. Medellín	*Rev. Fac. nac. Agron., Medellín*
COSTA RICA	
Information Bulletin. Costa Rica	*Inform. Bull., Costa Rica*
Revista de Agricultura. Costa Rica	*Rev. Agric., Costa Rica*
Suelo Tico	*Suelo tico*
Turrialba	*Turrialba*
ECUADOR	
Ciencia y Naturaleza	*Cienc. Natur.*
Flora. Quito	*Flora, Quito*
GUATEMALA	
Informe. Ministerio de Agricultura. Guatemala	*Inf. Minist. Agric. Guatemala*
MEXICO	
Agricultura técnica. México	*Agricultura téc., Méx.*
Anales del Instituto de Biología. Universidad de México (3)	*An. Inst. Biol., Méx.*
PERU	
Agronomía. Lima	*Agronomía, Lima*
Boletín Trimestral de Experimentación Agropecuaria. Lima	*Bol. trim. Exp. agropec., Lima*
Técnica Agropecuaria. Peru	*Téc. agropec., Peru*

SOUTH AND CENTRAL AMERICA—(*Continued*)

SURINAM	
Jaarverslag Department van Landbouw, Veeteelt en Visserij. Suriname	*Jaarversl. Dep. Landb. Suriname*
Surinaamse Landbouw	*Surinaam. Landb.*
URUGUAY	
Anales de la Facultad de Veterinaria del Uruguay	*An. Fac. vet., Urug.*
Archivos de la Sociedad de Biología de Montevideo	*Arch. Soc. Biol., Montevideo*
Propaganda Rural. Montevideo	*Prop. rur., Montevideo*
Revista de la Asociación de Ingenieros Agrónomos. Montevideo	*Rev. Asoc. Ing. agrón., Montevideo*
Revista Sudamericana de Botanica (7)	*Rev. sudamer. Bot.*
VENEZUELA	
Agricultor Venezolano	*Agricultor venezol.*
Agronomía Tropical. Maracay	*Agron. trop., Maracay*
Resumen de Actividades. Servicio Shell para el Agricultor	*Res. Activ. Serv. Shell Agric.*
Revista de la Facultad de Agricultura. Caracas	*Rev. Fac. Agric., Caracas*
Revista de la Facultad de Agronomía. Maracay	*Rev. Fac. Agron., Maracay*
Revista Pecuaria. Caracas	*Rev. Pec., Caracas*

SPAIN

Agricultura. Madrid	*Agricultura, Madr.*
Anales de Edafología y Fisiología Vegetal	*An. Edafol. Fisiol. veg.*
Anales de la Escuela de Peritos Agrícolas. Barcelona	*An. Esc. Perit. agríc., Barcelona*
Anales de la Estación Experimental de Aula Dei (8)	*An. Esta. exp. Aula Dei*
Anales del Instituto Botánico A.J. Cavanilles	*An. Inst. bot., Cavanilles*
Anales del Instituto Nacional de Investigaciones Agronómicas	*An. Inst. nac. Invest. agron.*
Archivos del Instituto de Aclimatación	*Arch. Inst. Aclim.*
Bolet n Agro-Pecuario	*Bol. agro-pec.*
Boletín del Instituto Nacional de Investigaciones Agronómicas	*Bol. Inst. nac. Invest. agron.*
Informe. Estación Experimental de Aula Dei	*Inf. Esta. exp. Aula Dei*
Publicaciones del Instituto de Biología aplicada (7)	*Publ. Inst. Biol. aplic.*

SWEDEN

Acta Agriculturae Scandinavica	*Acta agric. scand.*
Acta Phytogeographica Suecica	*Acta phytogeogr. suec.*
Agri Hortique Genetica. Landskrona	*Agri hort. genet., Landskrona*
Annales Academiae Regiae Scientiarum Upsaliensis	*Ann. Acad. Reg. Scient. Upsal.*
Försök och Forskning	*Försök Forskn.*
Hereditas. Lund	*Hereditas, Lund*
Jordbrukarnas Föreningsblad	*Jordbr. FörenBl.*
Kungl. Lantbrukshögskolans Annaler	*K. LantbrHögsk. Ann.*
Kungl. Skogs- och Lantbruksakademiens Tidskrift	*K. Skogs Lantb. akad. Tidskr.*
Lantmannen Svenskt Land	*Lantm. Svenskt Land.*
Meddelanden från Gullåkers Växtförädlingsantsalt, Hammenhög	*Medd. Gullak. VäxtförädlAnst.*
Meddelanden från Jordbrukstekniska Institutet. Uppsala	*Medd. jordbrtek. Inst., Uppsala*
Meddelanden från Statens Centrala Frökontrollanstalt. Stockholm	*Medd. Frökontrollanst., Stockh.*
Socker	*Socker*
Svensk Botanisk Tidskrift (5)	*Svensk bot. Tidskr.*
Svensk Frötidning	*Svensk Frötidn.*
Svensk Geografisk Årsbok	*Svensk geogr. Årsb.*
Sveriges Utsädesförenings Tidskrift	*Sverig. Utsädesfören. Tidskr.*
Växt-närings-Nytt	*Växt-närings-Nytt*
Växtskyddsnotiser. Stockholm	*Växtskyddsnotiser, Stockh.*
Weibulls Årsbok	*Weibulls Årsb.*

TITLE	ABBREVIATION USED

SWITZERLAND

Alpwirtschaftliche Monatsblätter	*Alpw. Mbl.*
Bericht über das Geobotanische Forschungsinstitut Rübel in Zürich	*Ber. geobot. ForschInst. Rübel*
Candollea (7)	*Candollea*
Communiqés de l'Association pour le Développement de la Culture Fourragère	*Commun. A.D.C.F.*
Experientia (5)	*Experientia*
Flugblatt. Eidgenossische Landwirtschaftliche Versuchsanstalt. Zürich-Oerlikon	*Flugbl. Eidg. landw. Versuchsanst., Zürich-Oerlikon*
Landwirtschaftliches Jahrbuch der Schweiz	*Landw. Jahrb. Schweiz*
Mitteilungen der Arbeitsgemeinschaft zur Förderung des Futterbaues	*Mitt. ArbGemeinsch. Förd. Futterbau*
Mitteilungen für die Schweizerische Landwirtschaft	*Mitt. schweiz. Landw.*
Rapport d'Activité de l'Association pour le Développement de la Culture Fourragère. Lausanne	*Rapp. Activité A.D.C.F., Lausanne*
Rapport. Station Fédérales d'Essais Agricoles de Mont-Calme et de Montagibert, Lausanne et Pully	*Rapp. Sta. féd. Essais agric. Mont-Calme. Montagibert, Lausanne et Pully*
Revue Romande d'Agriculture. Lausanne	*Rev. rom. Agric.*
Sammelbericht. Schweizerischer Alpwirtschaftlicher Verein	*SammelBer. schweiz. alpw. Verein*
Schweizerische Landwirtschaftliche Monatshefte	*Schweiz. landw. Mh.*
Tätigkeitsbericht. Eidgenossische Landwirtschaftliche Versuchsanstalt. Zürich-Oerlikon	*TätigkBer. Eidg. landw. Versuchsanst., Zürich-Oerlikon*

TURKEY

Tekel Enstitüleri Raporlari	*Tek. Enst. Rap.*

USA

Advances in Agronomy	*Advanc. Agron.*
Agricultural Chemicals	*Agric. Chem.*
Agricultural Engineering, St. Joseph, Michigan	*Agric. Engng, St. Joseph, Mich.*
Agronomy Journal (8)	*Agron. J.*
American Journal of Botany (8)	*Amer. J. Bot.*
American Midland Naturalist (4)	*Amer. Midld Nat.*
American Naturalist (5)	*Amer. Nat.*
American Potato Journal	*Amer. Potato J.*
Analytical Chemistry (8)	*Analyt. Chem.*
Annals of the Missouri Botanical Garden	*Ann. Mo. bot. Gdn*
Annual Review of Biochemistry	*Annu. Rev. Biochem.*
Annual Review of Plant Physiology	*Annu. Rev. Pl. Physiol.*
Archives of Biochemistry and Biophysics (5)	*Arch. Biochem. Biophys.*
Arkansas Farm Research	*Ark. Fm Res.*
Bacteriological Review (8)	*Bact. Rev.*
Better Crops with Plant Food	*Bett. Crops*
Bibliography of Agriculture. USDA	*Bibliogr. Agric. USDA*
Bi-monthly Bulletin of North Dakota Agricultural Experiment Station	*Bi-mon. Bull. N. Dak. agric. Exp. Sta.*
Biological Abstracts. Section D	*Biol. Abstr. (D)*
Biometrics (8)	*Biometrics*
Botanical Gazette (8)	*Bot. Gaz.*
Botanical Review (8)	*Bot. Rev.*
Brittonia. New York	*Brittonia, N.Y.*
Bulletin of the Department of Agriculture, California.	*Bull. Dep. Agric., Calif.*
Bulletin of the Ecológical Society of America	*Bull. ecol. Soc. Amer.*
Bulletin of the Torrey Botanical Club (2)	*Bull. Torrey bot. Cl.*

TITLE	ABBREVIATION USED
USA—(*Continued*)	
Butler University Botanical Studies	*Butler Univ. bot. Stud.*
California Agriculture	*Calif. Agric.*
Cereal Chemistry	*Cereal Chem.*
Cereal Science Today	*Cereal Sci. Today*
Cold Spring Harbour Symposium on Quantitative Biology (5)	*Cold Spr. Harb. Symp. quant. Biol.*
Contributions from Boyce Thompson Institute for Plant Research (8)	*Contr. Boyce Thompson Inst.*
Dissertation Abstracts (4)	*Diss. Abstr.*
Down to Earth	*Down to Earth*
Dupont Agricultural News-Letter (2)	*Dupont agric. News-Lett.*
Ecological Monographs	*Ecol. Monogr.*
Ecology	*Ecology*
Economic Botany	*Econ. Bot.*
Economic Geography	*Econ. Geogr.*
Experimental Parasitology (8)	*Exp. Parasit.*
Farm Chemicals	*Fm Chem.*
Farm and Home Research	*Fm Home Res.*
Foreign Agriculture	*Foreign Agric.*
Geographical Review	*Geogr. Rev.*
Growth	*Growth*
Hilgardia	*Hilgardia*
Idaho Agricultural Science	*Idaho agric. Sci.*
International Journal of Applied Radiation and Isotopes (8)	*Internat. J. appl. Rad. and Isot.*
International Rice Yearbook	*Internat. Rice Yearb.*
Iowa Farm Science	*Iowa Fm Sci.*
Iowa State College Journal of Science	*Iowa State Coll. J. Sci.*
Journal of Agricultural and Food Chemistry (8)	*J. agric. fd Chem.*
Journal of the American Society of Sugar Beet Technologists	*J. Amer. Soc. Sug. Beet Technol.*
Journal of the American Statistical Association (8)	*J. Amer. statist. Ass.*
Journal of Animal Science (8)	*J. Anim. Sci.*
Journal of Applied Physics (8)	*J. appl. Phys.*
Journal of the Arnold Arboretum (4)	*J. Arnold Arbor.*
Journal of the Association of Official Agricultural Chemists. Washington (8)	*J. Ass. off. agric. Chem., Wash.*
Journal of Bacteriology (8)	*J. Bact.*
Journal of Dairy Science (8)	*J. Dairy Sci.*
Journal of Economic Entomology (8)	*J. econ. Ent.*
Journal of the Elisha Mitchell Scientific Society (10)	*J. Elisha Mitchell sci. Soc.*
Journal of Forestry (4)	*J. For.*
Journal of Nutrition	*J. Nutr.*
Journal of Parasitology (8)	*J. Parasit.*
Journal of Range Management	*J. Range Mgmt*
Journal of Soil and Water Conservation	*J. Soil Wat. Conserv.*
Lloydia (2)	*Lloydia*
Maine Farm Research	*Maine Fm Res.*
Mycologia (8)	*Mycologia*
New Jersey Agriculture	*N.J. Agric.*
New Phytologist (8)	*New Phytol.*
Nuclear Science Abstracts (8)	*Nuclear Sci. Abstr.*
Ohio Farm and Home Research	*Ohio Fm Home Res.*
Ohio Journal of Science (3)	*Ohio J. Sci.*
Papers from the Michigan Academy of Science, Arts and Letters (10)	*Pap. Mich. Acad. Sci.*
Phytologia	*Phytologia*
Phytopathology (8)	*Phytopathology*
Plant Disease Reporter	*Pl. Dis. Reptr*
Plant Food Journal	*Pl. Fd J.*
Plant Physiology	*Pl. Physiol.*
Poultry Science (8)	*Poult. Sci.*
Proceedings of the American Society for Horticultural Science (8)	*Proc. Amer. Soc. hort. Sci.*

USA—(*Continued*)

Proceedings of the Association of Official Seed Analysts of North America	*Proc. Ass. off. Seed Anal. N. Amer.*
Proceedings of the Beltwide Cotton Defoliation Conference	*Proc. Beltwide Cott. Defol. Conf.*
Proceedings of the California Weed Conference	*Proc. Calif. Weed Conf.*
Proceedings of the Indiana Academy of Science	*Proc. Ind. Acad. Sci.*
Proceedings of the Iowa Academy of Science	*Proc. Iowa Acad. Sci.*
Proceedings of the North Central Weed Control Conference	*Proc. N. Cent. Weed Contr. Conf.*
Proceedings of the Northeastern Weed Control Conference	*Proc. N.E. Weed Contr. Conf.*
Proceedings of the Oklahoma Academy of Science	*Proc. Okla. Acad. Sci.*
Proceedings of the Soil Science Society of America (8)	*Proc. Soil Sci. Soc. Amer.*
Proceedings of the Southern Weed Conference	*Proc. S. Weed Conf.*
Proceedings of the Utah Academy of Sciences, Arts and Letters	*Proc. Utah Acad. Sci.*
Proceedings of the Western Weed Control Conference	*Proc. W. Weed Contr. Conf.*
Quarterly Bulletin. Michigan Agricultural Experiment Station	*Quart. Bull. Mich. agric. Exp. Sta.*
Quarterly Review of Biology	*Quart. Rev. Biol.*
Report of the Carnegie Institute Department of Plant Biology	*Rep. Carneg. Inst.*
Report of the Inter-American Institute of Agricultural Sciences	*Rep. Inter-Amer. Inst. agric. Sci.*
Report of the New York State College of Agriculture at Cornell University	*Rep. N.Y. St. Coll. Agric. Cornell*
Report of the Rockefeller Foundation (8)	*Rep. Rockefeller Fdn*
Report of the Southern Indiana Forage Farm	*Rep. S. Ind. Forage Fm*
Reports from Agricultural Experiment Stations—see below	
Research and Farming. North Carolina	*Res. and Fmg, N.C.*
Research in Review	*Res. in Rev.*
Research Report of the North Central Weed Control Conference	*Res. Rep. N. Cent. Weed Contr. Conf.*
Research Studies. State College of Washington	*Res. Stud. State Coll. Wash.*
Review of Scientific Instruments (8)	*Rev. sci. Instrum.*
Rice Journal	*Rice J.*
Science	*Science*
Science for the Farmer	*Sci. Fmr*
Seed Trade Buyers' Guide	*Seed Tr. Buy. Guide*
Seed World	*Seed World*
Soil Science (8)	*Soil Sci.*
South Dakota Farm and Home Research	*S. Dak. Fm Home Res.*
Soybean Digest	*Soybean Dig.*
Spreckels Sugar Beet Bulletin	*Spreckels Sug. Beet Bull.*
Sugar Beet Journal	*Sug. Beet J.*
Sugar Bulletin	*Sug. Bull.*
Sugar Scoop	*Sug. Scoop*
Technical Digest. Washington	*Tech. Dig., Wash.*
Transactions of the Kansas Academy of Science	*Trans. Kans. Acad. Sci.*
Transactions of the Wisconsin Academy of Sciences, Arts and Letters	*Trans. Wis. Acad. Sci.*
United States Golf Association Journal	*U.S. Golf Ass. J.*
Vermont Farm and Home Science	*Vermont Home Fm Sci.*
Veterinary Medicine (8)	*Vet. Med.*
Weeds	*Weeds*
Westland Pasture Journal	*Westld Past. J.*

Reports from Agricultural Experiment Stations in :

Alabama	*Ala*	Illinois	*Ill.*
Alaska	*Alaska*	Indiana (Purdue)	*Ind.*
Arizona	*Ariz.*	Iowa	*Ia*
Arkansas	*Ark.*	Kentucky	*Ky*
California	*Calif.*	Louisiana	*La*
Colorado	*Colo*	Maine	*Me*
Connecticut	*Conn.*	Maryland	*Md*
Florida	*Fla*	Massachusetts	*Mass.*
Georgia	*Ga*	Michigan	*Mich.*

Reports from Agricultural Experiment Stations in :

Minnesota	*Minn.*	Pennsylvania	*Pa*
Mississippi	*Miss.*	Rhode Island	*R.I.*
Missouri	*Mo.*	South Carolina	*S.C.*
Nebraska	*Neb.*	Texas	*Tex.*
New Hampshire	*N.H.*	Utah	*Utah*
New Jersey	*N.J.*	Vermont	*Vt*
New York State (Cornell)	*N.Y.*	Virginia	*Va*
North Carolina	*N.C.*	Washington	*Wash.*
North Dakota	*N. Dak.*	West Virginia	*W. Va*
Ohio	*Ohio*	Wisconsin	*Wis.*
Oklahoma	*Okla.*	Wyoming	*Wyo.*
Oregon	*Ore.*		

TITLE	ABBREVIATION USED
USSR	
Agrobiologija (10)	*Agrobiologija (Agrobiology, Moscow)*
Biohimija (1)	*Biohimija (Biochemistry, Leningr.)*
Botaničeskiĭ Žurnal. SSSR	*Bot. Ž., SSSR (Bot. J., USSR)*
Doklady Akademii Nauk, SSSR	*Doklady Akad. Nauk, SSSR (Proc. Acad. Sci., USSR)*
Doklady Vsesojuznoĭ Akademii Seljskohozjaĭstvennyh Nauk imeni V.I. Lenina	*Doklady Vsesojuz. Akad. S-H Nauk (Proc. Lenin Acad. Agric. Sci.)*
Ekonomika Seljskogo Hozjaĭstva	*Econ. seljshoz. (Econ. Agric.)*
Fiziologija Rasteniĭ	*Fiziol. Rast. (Pl. Physiol., USSR)*
Hlopkovodstvo	*Hlopkovodstvo (Cott. Prod.)*
Izvestija Akademii Nauk. SSSR	*Izv. Akad. Nauk, SSSR (Bull. Acad. Sci., USSR)*
Biol. Ser.	*Biol. Ser.*
Geogr. Ser.	*Geogr. Ser.*
Izvestija Timirjazevskoĭ Seljskohozjaĭstvennoĭ Akademii	*Izv. Timirjazevsk. seljsk. Akad. (Bull. Timirjazev agric. Acad.)*
Nauka i Peredovoĭ Opyt v Sel'skom Hozjaĭstve	*Nauka Pered. Opyt Sel'sk. Hoz. (Sci. Adv. exp. Agric.)*
Počvovedenie	*Počvovedenie (Pedology, Moscow)*
Priroda, Moskva	*Priroda, Moskva (Nature, Moscow)*
Socialističeskoe Seljskoe Hozjaĭstvo	*Soc. seljs. Hoz. (Social. Agric.)*
Trudy Botaničeskogo Instituta V.L. Komarova	*Trudy Bot. Inst. V.L. Komarova (Trudy Inst. bot., Acad. Sci., USSR)*
Trudy Instituta Fiziologii Rastenii im. K.A. Timirjazeva	*Trudy Inst. Fiziol. Rast. Timirjazeva (Trudy Timirjazev Inst. Pl. Physiol.)*
Trudy Instituta Zemledelija	*Trudy Inst. Zemled. (Proc. Inst. Agric.)*
Ukraïnsjkiĭ Botaničniĭ Žurnal. Kiev	*Ukr. bot. Ž., Kiev (Ukrainian Bot. J.)*
Uspehi Sovremennoĭ Biologii (13)	*Usp. Sovrem. Biol. (Adv. mod. Biol., Moscow)*
Zemledelie	*Zemledelie (Agriculture, USSR)*
Životnovodstvo	*Životnovodstvo (Anim. Husb.)*
WEST INDIES	
Farmer. Kingston, Jamaica	*Farmer, Kingston, Jam.*
Journal of the Agricultural Society of Trinidad and Tobago (2)	*J. agric. Soc. Trin. Tob.*
Journal of Agriculture of the University of Puerto Rico	*J. Agric. Univ. P.R.*
Report of the Agricultural Experiment Station. Puerto Rico	*Rep. agric. Exp. Sta., P.R.*
Report of the Antigua Agricultural Department	*Rep. Antigua agric. Dep.*
Report of the Agricultural Department. Montserrat (Leeward Islands)	*Rep. agric. Dep. Montserrat*
Report of the British West Indies Central Sugar Cane Breeding Station. Barbados	*Rep. B.W.I. Sug. Cane Breed. Sta*
Report of the Department of Agriculture. Jamaica	*Rep. Dep. Agric. Jam.*
Report of the Department of Agriculture. Trinidad and Tobago	*Rep. Dep. Agric. Trin. Tob.*
Report of the Department of Agriculture. British Virgin Isles	*Rep. Dep. Agric. Brit. Virgin Is*
Report of the Department of Science and Agriculture. Barbados	*Rep. Dep. Sci. Agric. Barbados*
Report of the Governing Body of the Eastern Caribbean	*Rep. Gov. Body E. Caribbean*
Revista de Agricultura. Habana	*Rev. Agric., Habana*
Revista de Agricultura. Puerto Rico	*Rev. Agric., P.R.*
Tropical Agriculture. Trinidad	*Trop. Agric., Trin.*

TITLE	ABBREVIATION USED

YUGOSLAVIA

Agronomski Glasnik	*Agronom. Glas.*
Arhiv Bioloških Nauka	*Arhiv. biol. Nauk.*
Arhiv za Poljoprivredne Nauke	*Arhiv. polj. nauke*
Biljna Proizvodnja	*Biljna Proizvod.*
Biološki Glasnik	*Biol. Glas.*
Bulletin Scientifique. Conseil des Academies de la RPF, Yougoslavie	*Bull. sci. Con. Acad. RPF, Youg.*
Poljoprivredna Znanstvena Smotra	*Poljopr. Znanstv. Smot.*
Posebna Izdanja	*Posebna Izdanja*
Stočarstvo	*Stočarstvo*
Veterinaria	*Veterinaria, Sarajevo*
Veterinarski Arhiv, Zagreb	*Vet. Arhiv, Zagreb*
Yearbook of the Faculty of Agriculture and Forestry. University of Skoplje	*Yearb. Fac. Agric. For. Skoplje*
Zaštita Bilja	*Zaštita Bilja*
Zbornik Radova Poljoprivrednog Fakulteta	*Zborn. Rad. Poljopr. Fakul.*
Zemljište i Biljka	*Zemlj. Biljka*

ZANZIBAR

Report of the Department of Agriculture. Zanzibar	*Rep. Dep. Agric. Zanzibar*

NOTES

Unless followed by a number in brackets, the publications listed above belong to the library of the Commonwealth Bureau of Pastures and Field Crops. The ownership of the other publications is indicated by the numbers in brackets.

(1) Commonwealth Bureau of Animal Nutrition, Aberdeen.

(2) Commonwealth Bureau of Horticulture and Plantation Crops, East Malling, Kent.

(3) Commonwealth Bureau of Plant Breeding and Genetics, Cambridge.

(4) Commonwealth Forestry Bureau, Oxford.

(5) Other Oxford libraries.

(6) Commonwealth Entomological Institute, London.

(7) Other London libraries.

(8) Grassland Research Station, Hurley, Berkshire.

(9) Commonwealth Bureau of Agricultural Parasitology, St. Albans.

(10) Commonwealth Mycological Institute, Kew.

(11) Commonwealth Bureau of Dairy Science and Technology, Shinfield, Nr Reading.

(12) Royal Botanic Gardens, Edinburgh.

(13) Commonwealth Bureau of Animal Breeding, Edinburgh.

(14) National Institute of Research in Dairying, Shinfield, Nr Reading.

COMMONWEALTH BUREAU OF PASTURES AND FIELD CROPS

Director
A. G. G. Hill, B.A., Agr.B. (Dublin), B.Sc. (N.U.I.)

Assistant Director
C. L. Skidmore, B.Sc. (Agric.) (Lond.), Dip. Agric. (Wye), A.I.C.T.A.

Scientific Assistants
Miss M. Hall, M.Sc. (Manchester)
Miss D. Brown, M.Sc. (Liverpool)
E. Biasutti Owen (Dr., Milan)
P. J. Boyle, M.A. (Agric.) (Cantab.)
Miss M. Pennington, B.Sc. (Lond.)
R. Boyce, B.Sc. (Dunelm.)

Consultant Director
William Davies, D.Sc., Director, Grassland Research Institute, Hurley, Berkshire.

FIELD CROP ABSTRACTS

The subscription rate (post free) for *Field Crop Abstracts* Volume 11, 1958 (4 issues), is 50s. sterling (in U.S.A. and Canada $7.00), with 20% discount for subscribers (non-trade) in the British Commonwealth and the Republics of Sudan and Ireland, who send their orders direct to the Commonwealth Agricultural Bureaux, Central Sales Branch, Farnham Royal, Bucks, England. No discount is allowed on earlier volumes.

Payment can be made by personal cheque at current rates of exchange, by International Money Order, by Bank Draft in sterling, or, in certain countries, by UNESCO Book Coupons. In countries other than U.S.A. and Canada, the approval of the local exchange control must be obtained, when required, for payment by personal cheque.

Scientific enquiries should be addressed to : The Director, Commonwealth Bureau of Pastures and Field Crops, Hurley, Berkshire, England.

HERBAGE ABSTRACTS

The subscription rate for *Herbage Abstracts* is the same as for *Field Crop Abstracts*. *Herbage Abstracts*, issued quarterly, presents, in condensed form, the world's current scientific literature on grasslands, fodder crops and their management. A specimen copy will be sent on request.

The chief aim of this Bureau is to abstract all published results of current scientific research on annual field crops, herbage and fodders, and to make these abstracts available through our two quarterly journals, *Field Crop Abstracts* and *Herbage Abstracts*. To achieve this aim, the Bureau staff maintains a constant scrutiny of approximately 1000 periodicals, reports and occasional publications which reach us from more than 75 countries. A list of these periodicals and reports examined is published in this issue. The Bureau is always seeking to expand its coverage and suggestions for suitable additions to these lists will be appreciated. All scientific publications relating to annual field crops, herbage and fodder crops, particularly special reports and advance copies of papers, are required so that they may be abstracted and their contents made known to our readers with the minimum delay. *Field Crop Abstracts*, now in its 11th year, has a world-wide circulation.

Translations are not undertaken by the Bureau, neither can publications other than reprints be loaned, but arrangements can be made with an outside agency to supply photostat or microfilm copies at cost price.

Suggestions for review articles, or comments on those published in the journals, are invited.

The Director is always pleased to receive comments on *Field Crop Abstracts* and any suggestions for its improvement.

A NEW BOOK IN THE GRASSLAND FARM SERIES:

GRASSLAND SEEDS

by W. A. WHEELER, D. D. HILL and eleven other leading agronomists

AGRICULTURAL RESEARCH institutes and colleges will find this book invaluable on all aspects of production, processing, handling and marketing of grass and legume seeds for forage, pasture, soil conservation and other turf plantings.

Americans have good reason to appreciate a careful study of these topics following the devastation and wasted fertility of millions of acres of farmland.

This volume contains an encyclopaedic mass of subject matter covering the knowledge gained in that country. *Grassland seeds* is sponsored by bodies representing practically the entire commercial seed industry of North America; moreover, the co-operation of the U.S. Dept. of Agriculture and the American agricultural colleges, implied by the distinguished professional standing of the authors, is a potent factor in the usefulness and completeness of this meticulously prepared work.

754 *pages, over* 200 *photographs & diagrams*, 94*s.*

A VERY BRIEF SUMMARY OF CONTENTS:

PART I Seed formation and germination, good stands from good seed, Testing field seeds, Pollination, Injurious insects, Disease problems, Disease control, Inoculation, Seed production, Harvesting and threshing, Processing, Drying and storing, Certification, Marketing, Estimating, etc.

PART II Seed acreage, production and processing details for nearly 600 crops from Alfalfa to Zoysias.

PART III Glossary, Forage crop seed information, Statistics, Screen suggestions, Trade rules, Standards, Seed improvement, Looking ahead, References, Index.

ALSO IN THE GRASSLAND FARM SERIES

Theory and Dynamics of Grassland Agriculture	**J. R. HARLAN**	*Illus.* 291 *pages*, 41*s.* 6*d.*
Grassland Farming in the Humid Northeast	**FORD PRINCE**	*Illus.* 448 *pages*, 45*s.*
Forage and Pasture Crops	**W. A. WHEELER**	*Illus.* 731 *pages*, 56*s.* 6*d.*
Ranch and Range Management	**ALFRED & RENNER**	*a new book, in active preparation.*

May we send you our leaflet No. 6, detailing all our agricultural books? D. VAN NOSTRAND COMPANY LTD., 358 Kensington High Street, London W.14.

FIELD CROP ABSTRACTS

VOL. 11, No. 1, 1958

CONTENTS

REVIEW ARTICLE : Groundnuts in Africa. By P. A. Oram ... ... PAGE 1

FIELD CROPS (ANNUAL) PAGES

Cereals 7
- Wheat
- Oats
- Rye
- Barley
- Maize
- Sorghum and millets
- Rice
- General

Legumes 31
- Soyabeans
- Groundnuts
- Peas
- Beans
- *Crotalaria* spp.
- Vetch
- Chickpeas
- Lupins
- General

Roots 36
- Sugar-beet
- Fodder-beet
- Potatoes
- Sweet-potatoes
- Yams
- General

Fibre crops 47
- Cotton
- Flax
- *Hibiscus* spp.

Oil Crops 52
- Sesame
- Safflower
- Rape
- Mustard
- *Crambe abyssinica*
- General

PAGES

LAND USE, SURVEYS and MANAGEMENT 54

FARMING SYSTEMS and PRACTICES 55

WEEDS and WEED CONTROL ... 57

CROP BOTANY 60

AGRICULTURAL METEOROLOGY and CLIMATOLOGY 65

MISCELLANEOUS 66

REPORTS 68

BOOKS 70

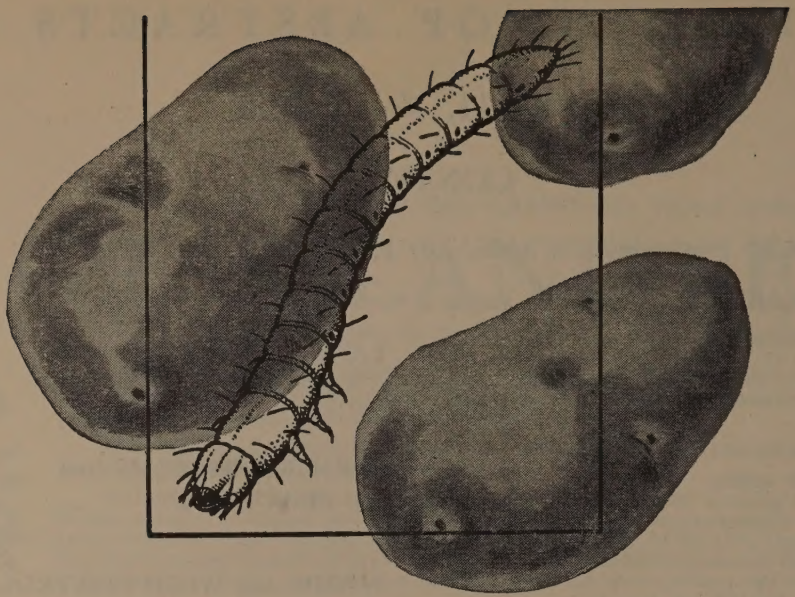
NEWS ITEMS and NOTES 74

ANNUAL AUTHOR INDEX xxxi

Where † follows the number which appears before the title of an abstract, it indicates that the abstract, or book review, is also reproduced in *Herbage Abstracts*.

The locality shown in square brackets in the Title Heading indicates where the work reported was carried out.

For abstracts dealing with plantation crops, including sisal, sugar-cane and tobacco, see *Horticultural Abstracts*.



Halved labour: Double benefit

In many countries where there is a soil pest problem such as wireworm, farmers are now applying insecticide and fertiliser *in one operation*. This important, two-jobs-in-one farming technique has been made possible because aldrin can be mixed successfully, without caking, with any fertiliser mixture, whether of an acid or alkaline nature. In addition, the *stability* of aldrin itself remains unaffected by variations in soil acidity. The outstanding advantages of aldrin/fertilisers are that not only is physical handling reduced but protection and feed are supplied together. Furthermore, by protecting the root system, aldrin enables the crop to take *maximum* advantage of the fertiliser. Growth is more rapid and yields are increased all round. Aldrin/fertiliser mixtures bring a double benefit — cost and crop.

Ready-mixed products are available from leading fertiliser manufacturers in many countries, or the mixing can be carried out on the farm.

aldrin

aldrin, dieldrin, endrin, D-D and Nemagon

are SHELL *pesticides for world-wide use*

For further information apply to your Shell Company. *Issued by The Shell Petroleum Company Limited. London, E.C.3, England*